222. Lacaz (C. da S.). **Manual de micologia médica. 3a. Ed.** [Manual of medical mycology. 3rd Edition.]—559 pp., 270 fig. (8 col.), Rio de Janeiro, Livraria Atheneu S/A, 1960.

The 3rd edition of this comprehensive Portuguese text on medical mycology and its techniques is on similar lines to the earlier editions (1953, 1956) but it has 137 more pages and 108 more fig. than the 2nd ed. Among the additions is a chapt. on mycoses of veterinary interest (pp. 421–439) and one on pathological anatomy (pp. 457–496). The bibliography (pp. 533–554) in 31 sect. has been much enlarged and a glossary of mycological terms (pp. 524–532) has been added.

223. Cruickshank (R.) (Editor). **Mackie & McCartney's Handbook of bacteriology. A guide to the laboratory diagnosis and control of infection.** Tenth Edition.—xi+980 pp., 45 fig., Edinburgh & London, E. S. Livingstone Ltd., 1960. 40*s*.

Chapt. 44 (pp. 883–906) of the latest and thoroughly revised edition of this much used work is devoted to a general account of pathogenic fungi.

224. **Sabouraudia**—Edinburgh & London, E. S. Livingstone Ltd. 80*s*. ($12.00) per vol. (4 parts).

This new journal is devoted to original papers on all aspects of medical and veterinary mycology, book reviews, and news of the International Society for Human and Animal Mycology whose official organ it is. Vol. **1**, part 1, published Jan. 1961, contains in addition to the papers noticed in this *Review* [**4**, Nos. 262, 302–3, 326–8, 342, 360] a survey of medical and veterinary mycology (pp. 3–7) by J. E. Mackinnon, the Society's president, and a portrait of Sabouraud.

225. **Applied mycology.**—*Ser. Philipp. sci. Bibliogr.*, 1, iii+14 pp., 1960.

In this classified bibliography listing 288 papers published in the Philippines is a sect. 'Pathogenic fungi and mycoses', pp. 11–13, with 44 ref. covering 1910–58.

226. Das-Gupta (S. N.), Shome (S. K.), & Majumdar (S. S.). **Medical mycology in India.**—*Mycopathologia*, **13**, 4, pp. 339–376, 1960. [9 pp. ref.]

A review of medical mycology in India 1860–1959 [see below]. The diseases dealt with are arranged in the following groups (each with a useful bibliography): maduromycosis; dermatomycoses and allied diseases (general survey, therapeutics, physiology); actinomycosis; candidiasis (general, therapeutics); rhinosporidiosis; blastomycosis; sporotrichosis; chromoblastomycosis; histoplasmosis; and coccidioidomycosis (1 doubtful record).

227. Randhawa (H. S.), Sandu (R. S.), & Viswanathan (R.). **Medical mycology in India—a review of the work done since 1910.**—*Indian J. Chest Dis.*, **3**, 1, pp. 33–39, 1961. [7 pp. ref.]

This review [see above] is arranged by diseases: dermatomycoses, actinomycosis, nocardiosis, candidiasis, histoplasmosis, blastomycosis (*Blastomyces dermatitidis*; not definitely recorded for India [see below]), sporotrichosis, chromoblastomycosis, rhinosporidiosis, mycetoma, aspergillosis, and miscellaneous, each with a bibliography.

228. Jhala (C. I.) & Soman (S. D.). **Visceral mycoses.**—*J. J.J. Hosp. Grant med. Coll.*, **5**, 3, pp. 176–182, 1960.

A sp. of *Blastomyces* isolated on Sabouraud's maltose agar from the sputum of

a 35-yr.-old male with pulmonary symptoms was characterized by shining, moist, creamy-white, circular, rugose colonies reaching a diam. of approx. 1 cm. after 2–3 weeks, which contained blastospores with double refractile walls, some showing well-marked budding. The aerial mycelium was produced only after protracted growth and the conidia were indistinct. The fungus was referred to M. J. Thirumalachar and stated by him to be distinct from *B. dermatitidis* and *B.* [*Paracoccidioides*] *brasiliensis*.

The fungus involved in the other 3 cases reported, a 45-yr.-old woman and 2 children (girl 1½ and boy 3 yr.), was *Candida albicans*.

229. Boshes (L. D.). **A review of fungus infections of the central nervous system.** —*Mycopathologia*, **13**, 3, pp. 215–236, 15 fig. 1960. [45 ref.]

Useful notes are given on the etiologic agents, pathology, symptomatology, and recent advances in the treatment of infections of the central nervous system by *Cryptococcus neoformans*, *Coccidioides immitis*, *Actinomyces israelii*, *Nocardia asteroides*, *Blastomyces dermatitidis*, *B.* [*Paracoccidioides*] *brasiliensis*, *Aspergillus fumigatus*, *Candida* spp. (mostly *C. albicans*), *Sporotrichum schenckii*, *Mucor mucedo*, *Histoplasma capsulatum*, and *Cladosporium trichoides*.

[See also Boshes (L.). Fungus infections of the central nervous system (current status of management), *Dis. nerv. Syst.*, **21**, 5, pp. 253–260, 1960 [*Biol. Abstr.*, **35**, No. 53699].]

230. McDiarmid (A.). **Diseases of free-living wild animals.**—*F.A.O. Anim. Health Branch Monogr.* 1, iii+91 pp., 1960. [Mimeographed.]

This useful review includes a note on actinomycosis and related diseases (p. 29; 7 ref.) and a sect. on fungal diseases (pp. 36–43) dealing *inter alia* with aspergillosis, coccidioidomycosis, haplomycosis, histoplasmosis, sporotrichosis, and ringworm (dermatophytes), each disease having a short bibliography.

231. Saëz (H.). **Champignons isolés chez des flamants et des pélicans morts en captivité.** [Fungi isolated from Flamingoes and Pelicans dead in captivity.]— Reprinted from *Cah. Méd. vét.*, **29**, 5, 9 pp., 3 fig., 1960.

Notes are given on fungi isolated during Dec. 1958–July 1959 from flamingoes and pelicans which had died at the Parc Zoologique, Paris. They included *Aspergillus fumigatus*, *A. flavus*, and *A. nidulans* from *Phoenicopterus ruber*; *A. amstelodami* from the same and from *Pelecanus philippensis*; *Candida albicans* from *Phoenicopterus ruber* and *P. antiquorum*; *Mucor*, *Trichoderma*, *Alternaria*, etc., from *P. ruber*; *Chaetomium funiculosum* from *Pelecanus rufescens*; and *Scopulariopsis brevicaulis* from *P. occidentalis*. The work showed that different kinds of aspergillosis may be present in one animal, different spp. of *Aspergillus* are pathogenic, and animals free from any mycosis may carry pathogenic fungi.

232. Stinson (Frances L.) & Fahlberg (W. J.). **Studies on a culture medium for the identification of pathogenic systemic fungi.**—*Tex. Rep. Biol. Med.*, **17**, 4, pp. 626–631, 1959.

At Baylor Univ. Coll. Med., Tex., a non-selective medium containing soytone, protone, maltose, glucose, and trace elements stimulated the growth, sporulation, and pigmentation of *Cryptococcus neoformans*, *Candida albicans*, *Nocardia asteroides*, *Coccidioides immitis*, *Blastomyces dermatitidis*, *Histoplasma capsulatum*, and *Trichophyton megninii*, without affecting the general characteristics of the colonies or any other property used for identification.

233. Jung (H.-D.) & Gerhardt (Hella). **Eine modifizierte Agarblock-Methode zum Studium pathogener und saprophytärer Pilze.** [A modified agar block

method for the study of pathogenic and saprophytic fungi.]—*Derm. Wschr.*, **142**, 50, pp. 1351–1356, 4 fig., 1960.

The modification introduced at the Polyklinik Neubrandenburg, Berlin, consists in fixation with Carnoy sol. (5 min.) followed by staining with 2 drops/ml. distilled water of Giemsa's azure-eosin-methylene blue (2–10 min.). The resultant preparations are rich in colour contrasts; the spp. illustrated are of *Cephalosporium*, *Hormodendrum*, *Aspergillus*, and *Scopulariopsis*.

234. Prunieras (M.). **PAB : a valuable stain for connective tissue, keratin and fungi.**—*J. invest. Derm.*, **35**, 6, pp. 309–314, 1960. [29 ref.]

At Clinique Dermatologique, Faculté de Médecine, Strasbourg, France, Permanganate Alcian Blue [**4**, No. 12] was found to be a selective stain for free or masked mast cells, keratin, and fungal walls, when used at very low pH.

235. Pickett (J. P.), Bishop (C. M.), Chick (E. W.), & Baker (R. D.). **A simple fluorescent stain for fungi. Selective staining of fungi by means of a fluorescent method for mucin.**—*Amer. J. clin. Path.*, **34**, 3, pp. 197–202, 9 fig., 1 table, 1960.

This method for screening tissues rapidly for fungi has been developed at the Dept Path., Duke Univ. Sch. Med. and the Veterans Administration Hosp., Durham, N. Carol. All the fungi examined except *Nocardia* and *Rhizopus* fluoresced red, yellow, yellow-green, or green against a dark background when stained in sections or smears with acridine orange and examined with blue light.

236. Ishida (S.), Matsuda (A.), Kawamura (Y.), & Yamanaka (K.). **Antifungal agent. I. Antibacterial and antifungal activities in vitro of several organic compounds. II. Antibacterial and antifungal activities of cinnamaldehyde derivatives. III. Antibacterial and antifungal activities of α-bromocinnamaldehyde derivatives.**—*Chemotherapy, Tokyo*, **8**, pp. 146–159, 1960. [*Chem. Abstr.*, **54**, 21, col. 22844b, 1960.]

It appeared from experiments at Nippon Kayaku Co., Tokyo, using agar-streak methods, that the activity of benzylideneacetophenone, cinnamaldehyde, and ionone, e.g. against *Trichophyton mentagrophytes* and *Candida albicans*, is attributable to a structure of C: CC: O type contained therein.

It was disclosed by the examination of 32 cinnamaldehyde derivatives that the halogenation of α-C resulted in a strong enhancement of antifungal activity. The min. lethal doses of α-bromocinnamaldehyde and *p*-nitro-α-bromocinnamaldehyde were approx. equal, i.e. 1,000 mg./kg. applied subcutaneously and 2,000–3,000 mg. orally. An ointment containing 0·5 or 1% of the former compound was effective against *T. mentagrophytes*.

The diethyl acetal of α-bromocinnamaldehyde was the most active of several acetals of the aldehyde investigated, inhibiting the growth of *C. albicans* and *T. mentagrophytes* at 512 and $16/10^4$ respectively. The irritant and toxic properties of the compound, causing swelling and erythema of the skin when used as an ointment, were reduced by acetalization.

237. **Colloque sur les phénomènes d'immunité en parasitologie. Marseille, mai 1959. Deuxième partie.** [Conference on the phenomena of immunity in parasitology. Marseilles, May 1959. Part 2.]—*Path. Biol.*, **8**, 3–4, pp. 289–335, 2 fig., 3 diag., 1960. [Engl., Span., Germ. summ.]

The 1st 2 papers have been noticed [**3**, No. 1569]. The remainder comprise: [Phenomena of immunity in diseases caused by dermatophytes], by E. Rivalier (pp. 307–312), in which natural and acquired immunity are differentiated; [A study on the interdermal reactions to diluted trichophytin in various dermatoses], by

P. Temime, J. Ranque, P. Y. Castelain, Y. Privat, & Mme Benne (pp. 313–318), in which the authors, dealing with 79 patients and 35 controls, discuss the relative frequency of sensitization to trichophytin, the threshold of sensitization to it, and the specificity of positive reactions; [Respiratory allergies due to *Candida albicans*], by J. Charpin, A. Zafiropoulo, & M. Blanc (pp. 319–322), which records a specific desensitization to *C. albicans* carried out on 164 patients with respiratory symptoms, which in 70 cases gave excellent or useful results; [The value of cutaneous tests in allergy to *C. albicans*], by J. Sclafer & J. Hewitt (pp. 323–327), in which all positive skin tests are shown to be specific and of value in diagnosis; and [A contribution to the sero-immunological study of experimental candidiasis in the Rabbit], by P. Rimbaud, H. Harant, C. Bessière, J. A. Rioux, & J. M. Bastide (pp. 329–335), describing studies in which it was found that the proteinogram is not subject to appreciable disturbances except in the case of strongly marked immunizations and that the level of anti-*Candida* antibodies is proportional to the intensity of the aggression.

238. Pepys (J.), Riddell (R. W.), & Clayton (Yvonne M.). **Human precipitins against common pathogenic and non-pathogenic fungi.**—*Nature, Lond.*, **184**, 4695, pp. 1328–1329, 2 fig., 1959.

Antigens prepared from the mycelium or medium filtrate of cultures of *Trichophyton rubrum* and *T. mentagrophytes* var. *interdigitale* [*T. interdigitale*] and from *Aspergillus fumigatus*, *Cladosporium herbarum*, and *Penicillium notatum* were tested by agar-gel diffusion, at the Brompton Hosp., London, against sera of patients with *T. rubrum* infection and other sera, some of which contained *Aspergillus* precipitins. Common antigenic determinants were demonstrated in *T. rubrum*, *C. herbarum* and *A. fumigatus*, and in *T. interdigitale* and *P. notatum*.

239. Feinberg (J. G.). **Misinterpretation of an agar-gel precipitation pattern.**—*Nature, Lond.*, **188**, 4751, pp. 684–685, 2 fig., 1960.

It is suggested that the precipitation lines denoting common antigenic determinants in *Trichophyton rubrum* and *Aspergillus fumigatus* noted by Pepys *et al.* [see above] could have been falsely obtained with the well-pattern used. At Beecham Res. Labs. Ltd., Betchworth, Surrey, the author obtained identical lines, using the same well-pattern, between rabbit antiserum to ovalbumin and ovalbumin and saline only.

J. Pepys, R. W. Riddell, & Y[vonne] M. Clayton reply stating that the presence of common antigenic determinants was demonstrated also by inhibition tests. Addition of *A. fumigatus* or *T. rubrum* extracts to sera resulted in partial or complete inhibition of precipitation lines of both spp.

240. Bisht (D. B.). **Actinomycosis of forty years' duration. (A case report.)**—*J. Ass. Physicians India*, **8**, 4, pp. 367–369, 1 fig., 1960.

Report from the Med. Coll., Pondicherry, on infection of the hip bones by *Actinomyces bovis* [*A. israelii*] in a woman from Garhwal District, Uttar Pradesh.

241. Christie (A. O.) & Porteous (J. W.). **A technique for obtaining uniform inocula of Actinomyces israelii.**—*J. gen. Microbiol.*, **23**, pp. 261–265, 1 fig., 1960.

At Dept biol. Chem., Marischal Coll., Univ. Aberdeen, Scotland, small, viable colonies of *A. israelii* were obtained by means of a stirred-culture technique in which N was bubbled through the suspension. Such suspensions gave uniform inocula from a graduated Pasteur pipette, as judged by total N determinations, and showed the characteristics of *A. israelii* grown in static liquid media.

242. Peabody (J. W.) & Seabury (J. H.). **Actinomycosis and nocardiosis. A review of basic differences in therapy.**—*Amer. J. Med.*, **28**, 1, pp. 99–115, 15 fig., 1960.

Actinomyces bovis [*A. israelii*] is extremely sensitive to penicillin, which is the treatment choice for actinomycosis. The sulphonamides, though responsible for many cures, are greatly inferior to penicillin. *In vitro* sensitivity studies and clinical experience indicate that one or other of the broad spectrum antibiotics may be highly effective, so that undoubtedly some very early cases are cured before diagnosis by random antibiotic therapy.

Nocardia asteroides is relatively resistant and much less likely to be eradicated by indiscriminate drug administration. All *N.* strs. examined by the authors showed marked resistance to penicillin: sulphadiazine is more effective *in vitro* and provides the best animal protection. The broad spectrum antibiotics and streptomycin have a less marked and more variable effect. Sulphadiazine should constitute the one essential component of any drug regimen for nocardiosis, combined with whatever drug appears most effective *in vitro*.

As both actinomycosis and nocardiosis are chronic diseases, one should not expect a dramatic response to therapy. Both, particularly actinomycosis, produce a markedly fibrotic tissue reaction, and the organisms tend to form actinomycotic granules in the tissues, making it difficult to obtain effective drug levels in areas of infection and within the granules. Early institution of therapy gives the best chance of cure, and chemotherapy must be continued at high dosage over prolonged periods. Drainage and resection are indispensable in certain cases.

243. Scatozza (F.). **Su di un ceppo di Nocardia asteroides isolato dal bovino.** [On a strain of *N. asteroides* isolated from a bovine.]—*Vet. ital.*, **10**, pp. 441–458, 1959. [Engl., Fr., Germ. summ. *V.B.*, **29**, p. 676.]

This is a report from Univ. Perugia of the isolation from a slaughtered cow of *N. asteroides* from 2 enlargements obstructing the pharynx and 1 on the diaphragmatic lobe of the lung.

244. Barbesier (J.). **Sur une souche de Nocardia isolée du lait d'une vache atteinte de mammite.** [On a strain of *N.* isolated from the milk of a Cow with mastitis.] —*Arch. Inst. Pasteur Algér.*, **38**, 2, pp. 222–230, 1960.

Details are given of the morphological, cultural, and biochemical characters of *N. farcinica* var. *asteroides*. Stained by Ziehl's method, after 24 hr. on bouillon it generally appears as a slender rod, 3–4 × 0·2 μ, non-motile and non-capsulated. In older cultures the organism assumes a variety of forms, comprising branched hyphae bearing 'conidia' directly, rods of different lengths, concatenate 'arthrospores', and slightly pyriform coccoid elements. It is semi-acid-fast, Gram +, grows well in peptonized water without indole production, and does not liquefy coagulated serum or gelatine. Glucose, laevulose, saccharose, mannite, glycerol, and the C constituent of urea are utilized.

Pathogenicity to guinea-pigs was demonstrated by inoculation experiments via the intraperitoneal and intratesticular routes.

245. Fagard (P.), Thienpont (D.), & Vandervelden (M.). **Ostéite du maxillaire supérieur due à Nocardia sp. chez une vache.** [Osteitis of the maxilla caused by *N.* sp. in a Cow.]—*Bull. Soc. Path. exot.*, **53**, 3, pp. 493–500, 2 fig., 1960.

Among some 16,000 cattle seen over a 10-yr. period at the École des Assistants Vétérinaires, Astrida, French Congo, there was only 1 case of actinomycosis caused by an organism tentatively identified as *N.* [*Streptomyces*] *madurae*. The morphological, biochemical, and cultural characters of the actinomycete, the

clinical symptoms induced, and its sensitivity to antibiotics are described. It was non-pathogenic to laboratory animals.

246. Schneidau (J. D.) & Shaffer (M. F.). **Studies on Nocardia and other Actinomycetales. II. Antigenic relationships shown by slide agglutination tests.**—*Amer. Rev. resp. Dis.*, **82**, 1, pp. 64–76, 1960. [Fr., Span. summ.]

Slide agglutination tests with rabbit antiserum were used at Tulane Univ. Sch. Med., La, [cf. **3**, No. 1712] to study the antigenic behaviour of numerous representatives of *Nocardia* and *Mycobacterium*, and 2 *Streptomyces* spp.

Members of the *N. asteroides*, *N. brasiliensis*, *N. corallina*, and *N. opaca* groups behaved in a generally similar manner. Strs. of a given sp. sometimes showed antigenic homogeneity, but frequently significant cross-reactivity with antiserum was exhibited to other strs. and spp. within these groups. The members of these groups exhibited various degrees of cross-reactivity with antimycobacterial serum, but were very rarely, if at all, affected by antiserum versus *S.* or the '*S.*-like' *Nocardia* spp.

The '*S.*-like' *N.* spp., and the 2 *S.* spp. tested exhibited greater evidence of antigenic individuality, although some cross-reactions were observed.

In addition to providing evidence of the distinctiveness and/or cross-reactivity of strs. and spp. within the respective groups, the results have emphasized afresh the relative absence of relationships between *Nocardia* and *Mycobacterium* on the one hand, and *Streptomyces* (including the so-called '*S.*-like' *N.* spp.) on the other.

247. Mackenzie (D. W. R.) & McArdle (Maura). **Report on the mycological diagnostic service, Royal Victoria Hospital, 1959.**—*Ulster med. J.*, **29**, 1, pp. 70–73, 1960.

A routine mycological diagnostic service was set up at Dept Microbiol., Queen's Univ., Belfast, in Mar. 1959. In the 1st 10 months 1,087 specimens from 627 patients at 21 hospitals in N. Ireland were examined and 437 yielded pathogenic fungi (51 by microscopy only). Ringworm fungi accounted for 82·8%; *Trichophyton sulfureum*, *Microsporum canis*, and *T. verrucosum* were most common, followed by *T. rubrum*, *T. mentagrophytes*, *T. interdigitale*, and *Epidermophyton floccosum*. *T. quinckeanum* (1st report from N. Ireland), *M. gypseum*, and *T. megninii* were each isolated once. Other records included *Candida albicans* (35 times, mostly from the perineum, groin, or toespaces), *Malassezia furfur* (7), *Aspergillus niger* from a case of otomycosis, and *Scopulariopsis brevicaulis* from a dystrophic toe-nail.

248. Pattyn (S. R.) & Sassen (A.). **Étude des dermatophytes de Katanga.** [Study of the dermatophytes of Katanga.]—*Ann. Soc. belge Méd. trop.*, **40**, 3, pp. 541–548, 1960. [Flem., Engl., Germ., Span. summ.]

Microsporum audouinii was the predominant agent of tinea capitis in the regions of Elizabethville and Bukama, *Trichophyton yaoundei* [**3**, No. 343] was isolated from 2 cases, the 1st record for Belgian Congo. *M. gypseum* was isolated only from cave soil (5 of 40 samples).

249. Basset (A.) & Basset (Mme M.). **Les teignes du cuir chevelu au Sénégal. Enquête préliminaire.** [Tineas of the scalp in Senegal. Preliminary inquiry.]—*Bull. Soc. Path. exot.*, **53**, 3, pp. 500–505, 1 fig., 1960.

Of 327 pupils at the school of Khombole, a centre of rural sanitation 120 km. from Dakar, 80 were infected—17 by *Microsporum audouinii*, 60 by *Trichophyton soudanense*, 2 by undetermined spp., and 1 by a mixture.

250. Juminer (B.). **Dermatophytes des teignes scolaires en Tunisie.** [Dermatophytes of tineas in schools in Tunisia.]—*Arch. Inst. Pasteur Tunis*, **37**, 3, pp. 383-389, 1 map, 1960.

During the campaign of 1959–60 for the suppression of tinea among school children, 3 sectors (2 on the coast and 1 inland) furnished 4,149 samples of hair for mycological examination, of which 1,770 (42%) were positive. Trichophytoses, mostly due to *Trichophyton violaceum*, were largely predominant (1,371 or 77%), the corresponding figures for favus (*T. schoenleinii*), microsporosis (*Microsporum canis*), and 'megaspores' being 338 (19), 51 (3), and 10 (1), respectively.

Trichophytosis tended to be more prevalent in the coastal areas and favus inland. There were 4 cases of mixed infection.

251. Terreni (Anne A.). **Tinea capitis in Charleston, S.C.**—*Arch. Derm., Chicago*, **83**, 1, pp. 88–91, 1 graph, 1961.

Following an increase in the cases of tinea capitis at Med. Coll. S. Carol., Charleston, a survey of 6–15-yr.-old school children was made during Oct. 1953–Apr. 1954. Of 2,717 white children, 7 were infected (*Microsporum canis* (6), *M. audouinii* (1)); of 3,837 Negro children 293 were infected (271 positive cultures included *M. audouinii* (268), *M. canis* (2), and *Trichophyton tonsurans* (1)). Only 113 of the 300 proven cases showed clinical symptoms.

252. Many (H.), Derbes (V. J.), & Friedman (Lorraine). **Trichophyton rubrum : exposure and infection within household groups.**—*Arch. Derm., Chicago*, **82**, 2, pp. 226–229, 1960.

At Tulane Univ. Sch. Med., New Orleans, in June–Aug. 1958, 24 Negro households (97 people) and 6 Caucasian households (30 people), each having one proven case of *T. rubrum* infection, were examined for the presence of infection in the remaining members [**2**, No. 2296]. Multiple infections were found in 11 households.

Detailed study of the data indicated a considerable variation in individual resistance to clinical infection. The very high incidence of multiple infection among certain genetically related groups and the low incidence between conjugal couples suggest that one or more hereditary factors may be involved.

253. Kovshova-Medvedeva (Mme E. A.). Материалы к грибковой флоре Башкирской АССР за 9 лет (1947–1955) и некоторые данные по борьбе с микроспорией вызванной **Microsporum lanosum.** [Data on the fungal flora of the Bashkir A.S.S.R. for 9 years (1947–1955) and some data on the control of microsporosis, caused by *M. canis*.]—*Vestn. Derm. Vener.*, **33**, 3, pp. 54–56, 1959.

Cultures isolated from patients at Derm.-vener. Inst., Ufa, U.S.S.R., included 49·3% *Microsporum*, 41·4 *Trichophyton*, 7·9 *Achorion*, and 1·4 mixed. The increase of *M. canis* infections (in 1949 1·8%, in 1954 20% in Bashkir Republic and 65·9% in Ufa alone) was due to epidemics among the cats, which were considered responsible for 48·4% by direct transmission. Among 260 patients (89·6% children (70% boys)) 210 had scalp infections. Veterinary checks and elimination of the diseased cats in Ufa reduced the incidence by 15·9% in 1955 and by 21% in 1956. In the Republic as a whole the violet *T.* [*T. violaceum*] was the most frequent cause of the mycoses (43–49·9%) in 1954–5.

254. Donald (G. F.), Shepherd (R. A. W.), & Brown (G. W.). **A survey of 581 dermatophytes identified in South Australia during the years 1954 to 1959.**—*Aust. J. Derm.*, **5**, 2, pp. 81–89, 1959.

Of 1,217 patients in S. Australia examined during 1954–59 [cf. **3**, Nos. 1408, 1409] 645 were proved to have superficial fungal infections, confirmed by culture in 581

cases. The fungi isolated included *Microsporum canis* (373 cases), *M. gypseum* (1), *Trichophyton tonsurans* (72), *T. mentagrophytes* (47), *T. violaceum* (43), *T. rubrum* (26), *T. concentricum* (1), *T. schoenleinii* (1), and *Epidermophyton floccosum* (14).

This is the 3rd survey of superficial fungus infections from Australia [**1**, No. 2500; **2**, No. 652; see below].

255. Donald (G. F.). **The history, clinical features, and treatment of tinea capitis due to Trichophyton tonsurans and Trichophyton violaceum.**—*Aust. J. Derm.*, **5**, 2, pp. 90–102, 12 fig., 1959. [Numerous ref.]

A report from Adelaide of 168 cases of endothrix tinea capitis in 37 white people (32 infected by *T. tonsurans*, 2 (both Greek migrants) by *T. violaceum*, and 3 not cultured) and 131 aboriginals or part-aboriginals (64 infected by *T. tonsurans*, 47 by *T. violaceum*, 9 both spp., and 11 not cultured). The patients included 3 adults (all female) and 15 adolescents. Griseofulvin, given in 47 cases, gave uniformly excellent results.

256. Morton (Mary). **Superficial mycoses in Melbourne.**—*Med. J. Aust., 1960* (i), 26, pp. 1006–1014, 1960. [16 ref.]

Two surveys are reported from Bact. Dept, Univ. Melbourne [cf. above]. The 1st embraced 125 unselected patients attending dermatologists for various skin complaints. In 58 of these fungal infection was excluded on clinical grounds. Pathogenic fungi were isolated from 5 of the remaining 67 (i.e. 4% of all skin infections) and included *Candida albicans* (2), *Epidermophyton floccosum* (1), and *Trichophyton mentagrophytes* (2). The 2nd embraced 451 cases of clinically suspected mycoses and included 47 cultures received for identification. Pathogenic fungi isolated were *C. albicans* (26), *T. rubrum* (50), *Microsporum audouinii* of the dysgonic type (5), *T. verrucosum* (8), *T. violaceum* (2), *T. sulfureum* (7), *M. canis* (49), *T. schoenleinii* (1), *T. mentagrophytes* (29), *E. floccosum* (14), and *T.* sp. (1).

257. De Silva (M. J. P.). **Tinea capitis with report of a case of kerion celsi.**—*Ceylon med. J.*, N.S., **5**, 3, pp. 131–132, 2 fig., 1960.

The agent of inflammatory tinea capitis in an 8-yr.-old girl examined at the Skin Clinic, Colombo, was *Microsporum canis*, infection having apparently been contracted from a cat. This is the 1st report of kerion celsi for Ceylon.

258. Vanbreuseghem (R.). **Un cas d'herpès circiné d'origine tellurique causé par Microsporum gypseum.** [A case of herpes circinatus originating in soil and caused by *M. gypseum*.]—*Ann. Soc. belge Méd. trop.*, **40**, 2, pp. 409–414, 1960. [Flem., Engl., Germ., Span. summ. 10 ref.]

A case is described from Belgium of a boy aged 5½ yr. who developed herpes circinatus of the knee after injury by a fall in a garden in Leopoldville, Belgian Congo. *M. gypseum* was isolated from the lesions and also from the garden soil.

259. Balabanov (V.). Културелно-морфологични, клинични и таксономични проучвания върху микроспорията у нас. [Cultural-morphological, clinical, and taxonomical studies of *Microsporum* in Bulgaria.]—Науч. Труд. В.М.И., София [*Nauch. Trud. V.M.I., Sofiya*], **6**, 2, pp. 71–89, 18 fig., 1959. [Russ., Germ. summ. 21 ref.]

A report from High Inst. Med., Sofia, Bulgaria, on isolation of *M. ferrugineum* (18 strs.), *M. audouinii* (5), *M. equinum* (4), *M. gypseum* (3), and *M. lanosum* [*M. canis*] (1). Of these isolates 9 from Korean children were typical of *M. ferrugineum* and its vars. *aureum* and *japonicum*. Comparative studies of Bulgarian and Korean strs. were made and the possibilities of an introduction of the latter into Bulgaria were considered.

260. Jung (H.-D.). **Die Meldepflicht der Dermatomykosen in der DDR und ihre sozialhygienische Bedeutung.** [The notifiability of dermatomycoses in the German Democratic Republic and its socio-hygienic importance.]—*Dtsch. Gesundheitsw.*, **14**, 5, pp. 231–234, 1 graph, 2 maps, 1959.

Information already noticed [**4**, No. 29].

261. Shanon (J.) & Raubitschek (F.). **Tinea faciei simulating chronic discoid lupus erythematosus.**—*Arch. Derm., Chicago*, **82**, 2, pp. 268–271, 4 fig., 1960.

Four case reports from Hadassah Univ. Hosp., Jerusalem, of tinea capitis in adults (3 women, 1 man) in which facial lesions resembled discoid lupus erythematosus. *Trichophyton rubrum* was cultured from 2 cases and *T. gypseum* [*T. mentagrophytes*] from another; in all 4 fungus infection was demonstrated by PAS staining.

262. Mackenzie (D. W. R.). **The extra-human occurrence of Trichophyton tonsurans var. sulfureum in a residential school.**—*Sabouraudia*, **1**, 1, pp. 58–64, 2 fig., 1961. [Germ. summ.]

Following an outbreak of *T. tonsurans* Malmsten var. *sulfureum* (Sab.) Mackenzie (a new combination formally proposed) infection in a Belfast residential school for girls [**4**, No. 40], an investigation was undertaken at Dept Microbiol., Queen's Univ., Belfast, to determine the extent to which the fungus existed in the environment. It was isolated on 89 occasions, including 52 times from hair brushes or combs and 19 from pillowslips, and also from bed-clothes, floors, a curtain, etc., and air in the vicinity of infected children's beds during bedmaking.

263. Simon (J.). **Verbreitung und Bekämpfung der Fussmykosen unter besonderer Berücksichtigung der Verhältnisse im Steinkohlenbergbau.** [Distribution and control of foot mycoses with special reference to bituminous coal-mine conditions.]—*Z. ges. Hyg.*, **6**, 5, pp. 272–281, 4 fig., 1960. [43 ref.]

The author [of VEB Steinkohlenwerk Karl Marx, Zwickau, Germany] examined 1,625 mine workers for [unspecified] interdigital foot mycoses. In a 4 months' treatment, including spraying of patients' feet and socks and of wash-, shower-, and cloak-rooms with the new antimycotic brolona from VEB Chemische Werke, Radebeul, the incidence decreased from 61·23 to 24·06%. Of initially positive cases 77% were improved, 19·5 unchanged, and 3·5 deteriorated. It is maintained that mass infection in large works can be rapidly controlled only by a combination of therapeutic and prophylactic methods, and the importance of the patients' co-operation and of the improvement of bathing and washing equipment is emphasized.

264. Donald (G. F.). **Tinea contracted from Kangaroos.**—*Med. J. Aust.*, **1**, 22, pp. 852–853, 1960.

During 1955–59 the author, at the Queen Elizabeth Hosp. and Inst. med. Vet. Sci., Adelaide, treated 8 persons from 4 family groups, who were infected by *Trichophyton mentagrophytes* following contact with pet kangaroos. In all instances the kangaroos had been destroyed, but from the similarity of the clinical and epidemiological patterns it seemed reasonable to assume that the kangaroos were the cause of the outbreaks. A survey of the mycoses of domestic animals in S. Australia is in progress.

265. Marples (Mary J.) & Smith (J. M. B.). **The Hedgehog as a source of human ringworm.**—*Nature, Lond.*, **188**, 4753, pp. 867–868, 1960.

The isolation of *Trichophyton mentagrophytes* from 7 of 26 living and dead hedgehogs examined at the med. Sch., Univ. Otago, New Zealand, is reported. The possible epidemiological significance for human ringworm of these records is discussed.

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266. Manktelow (B. W.). **Human ringworm associated with Trichophyton mentagrophytes infection in Guinea Pigs.**—*N.Z. med. J.*, **59**, 338, pp. 488–489, 4 fig., 1960.

During the summer 1959–60, 4 workers in contact with guinea-pigs at the Wallaceville Animal Res. Sta., Dept Agric., Wellington, developed ringworm lesions on arms and legs. From 3 of the cases *T. mentagrophytes* was isolated. The dermatophyte was also isolated from 31 of 32 guinea-pigs with lesions and from 4 without.

267. Rieth (H.), Schönfeld (J.), & Schirren (C.). **Beziehungen zwischen humanen und animalen Dermatomykosen. IV. Sollten spontan heilende Mikrosporien bei Katzen und Hunden wie beim Menschen behandelt werden?** [Relations between human and animal dermatomycoses. Should spontaneously healing microsporoses be treated in Cats and Dogs as in Man?]—*Bull. pharm. Res. Inst., Osaka*, 28, pp. 1–8, 4 fig., 1960. [32 ref.]

The treatment of these diseases, caused by *Microsporum canis* (most often), *M. gypseum* (rarely), and *M. audouinii* (exceptionally), is advocated by the Universitäts-Hautklinik, Hamburg-Eppendorf, and the Universitäts-Hautklinik, Heidelberg, Germany.

268. Schulze-Bader (U.) & Rieth (H.). **Latente Pilzinfektion als Komplikation bei experimenteller Mäusetrichophytie.** [Latent fungus infection as complication of experimental trichophytosis in Mice.]—*Bull. pharm. Res. Inst., Osaka*, 27, pp. 1–7, 3 fig., 1960. [18 ref.]

Laboratory mice at Inst. de Provisión Social, Asuncion, Paraguay, and Universitäts-Hautklinik, Hamburg-Eppendorf, Germany [cf. **4**, No. 42], although free from symptoms, were shown to harbour *Trichophyton mentagrophytes* spores. Inoculation induced the disease in some mice, including 1 control.

269. Rosenthal (T.). **Perspectives in ringworm of the scalp. Treatment through the ages.**—*Arch. Derm., Chicago*, **82**, 6, pp. 851–856, 1960. [15 ref.]

A historical review.

270. Grimmer (H.). **Griseofulvin.**—*Mykosen*, **3**, 4, pp. 124–136, 7 fig., 1960. [53 ref.]

A general review in German, supplemented with some of the author's clinical observations.

271. Further reports of the successful use of griseofulvin [cf. **4**, No. 52]:

a. Andrews (G. C.), Domonkos (A. N.), & Silva (A.). **Griseofulvin in dermatomycoses.**—*J. Amer. med. Ass.*, **173**, 14, pp. 1542–1544, 1960.

[80 cases (*Trichophyton mentagrophytes*, *T. rubrum*, *Candida albicans*, *Epidermophyton floccosum*, and *Microsporum lanosum* [*M. canis*]). There was dramatic response in cases of onychomycosis and tinea corporis, including those caused by *C. albicans*. Side effects were observed in 12 cases, but none was serious.]

b. Bouvy (L. E.) & Pattyn (S. R.). **Traitement des teignes du cuir chevelu à l'aide de griséofulvine.** [Treatment of tinea capitis by means of griseofulvin.]—*Ann. Soc. belge Méd. trop.*, **40**, 3, pp. 289–292, 1960. [Flem., Engl., Germ., Span. summ.]

[Elizabethville, Belgian Congo; 25 cases (*Microsporum audouinii*, *Trichophyton violaceum*, *T.* [*M.*] *ferrugineum*. A *T. soudanense* infection proved more refractory).]

271*c*. Donald (G. F.). **Recent advances in the treatment of superficial fungous diseases : the use of antifungal antibiotics.** –Reprint from *Med. J. Aust.*, 14 May, pp. 762–763, 1960.

[Adelaide; 100 cases of tinea (including 81 *Microsporum canis*).]

d. Rao (Ahalya), Banerjee (A. K.), & Bose (N.). **Griseofulvin therapy in dermatomycosis.**—*Bull. Calcutta Sch. trop. Med.*, **8**, 4, pp. 169–170, 1960. [3 ref.]

[Calcutta; 6 cases (*Trichophyton tonsurans*, *T. rubrum*, *T. faviforme* [*T. verrucosum*], *Epidermophyton floccosum*).]

e. Reiss (F.), Kornblee (L.), & Gibbs (R.), with the technical assistance of J. Villafane. **Intensive griseofulvin therapy in tinea capitis.**—*Dermatologica, Basel*, **121**, 5, pp. 257–264, 1960. [Fr., Germ. summ.]

[Bellevue Hosp., N.Y.; 15 cases (*Microsporum audouinii*, *Trichophyton tonsurans*).]

272. Desai (S. G.) & Bhat (M. L. A.). **Studies on experimental infections with T. rubrum in humans and the mechanism of griseofulvin effect.**—*J. invest. Derm.*, **35**, 5, pp. 297–303, 1 graph, 13 fig., 1960.

At Dept Derm. and Venerol., K.E.M. Hosp., Bombay, 2 strs. of *T*[*richophyton*] *rubrum* were inoculated on to the forearms of 2 groups of volunteers: the 1st, 10 patients who had received griseofulvin for *T. rubrum* infection and had been clinically cured for 7 days, the 2nd, 8 untreated subjects with pre-existing chronic skin lesions caused by *T. rubrum* in other areas. Lesions were established with ease in both groups. The evolution of the lesions, and the results of culture, and microscopic examination of scrapings and biopsy specimens at various phases of evolution, are described and discussed.

273. Goldblatt (S.). **Severe reaction to griseofulvin.**—*J. Amer. med. Ass.*, **172**, 15, pp. 1643–1644, 1960.

A report from 199 Wm. Howard Taft Rd., Cincinnati, of severe generalized angioneurotic oedema and persistent urticaria in a 30-yr.-old male patient undergoing griseofulvin therapy for *Trichophyton rubrum* infection. Inadvertent interruption of the original course of griseofulvin therapy may have played a role in the development of the sensitivity reaction during the 2nd course. Another, unlikely, possibility is that the reaction represented toxic overdosage.

274. Goldman (L.), Beyer (Amanda), & Schwarz (J.). **Absence of local cytotoxic change in Man from griseofulvin.**—*Nature, Lond.*, **187**, 4734, p. 335, 1960.

At Coll. Med., Cincinnati Univ., Ohio, injections of super-saturated solutions of microcrystalline griseofulvin into normal skin of the back, arm, and scalp of man resulted in an occasional foreign-body reaction which subsided rapidly. There was no change in mitosis in the secondary tissues. Similar injections into various tumours neither retarded nor accelerated tumour growth.

275. Barich (L. L.), Nakai (T.), Schwarz (J.), & Barich (Donna J.). **Tumour-promoting effect of excessively large doses of oral griseofulvin on tumours induced in Mice by methylcholanthrene.**—*Nature, Lond.*, **187**, 4734, pp. 335–336, 1960.

At Coll. Med., Cincinnati Univ., Ohio, in experiments on white mice none of the controls treated with 3-methylcholanthrene or fed with griseofulvin developed tumours although 6 of 10 mice receiving 1% griseofulvin in the food mixture (and 2 of 10 receiving 0·5%) developed tumours after treatment with methylcholanthrene. The dosage in the 1% experiments was approx. 100 times that used in man.

276. Paget (G. E.) & Alcock (Shirley J.). **Griseofulvin and colchicine : lack of carcinogenic action.**—*Nature, Lond.*, **188**, 4753, p. 867, 1960.

It is reported from Imperial Chemical Industries Ltd., Alderley Park, Macclesfield, Ches., that in experiments over a 52-week period no evidence was obtained that either griseofulvin or colchicine was carcinogenic for albino Wister rats.

277. D'Arcy (P. F.), Howard (E. M.), Muggleton (P. W.), & Townsend (Shirley B.). **The anti-inflammatory action of griseofulvin in experimental animals.**—*J. Pharm., Lond.*, **12**, 11, pp. 659–665, 2 graphs, 1960.

The results of experiments described in this joint report from Allen & Hanburys Ltd., Ware, Herts., and Glaxo Laboratories Ltd., Greenford, Middx., using the cotton-pellet method in rats and the tuberculin-hypersensitivity test in guinea-pigs, demonstrated the marked anti-inflammatory effect of griseofulvin. However, its activity, wt. for wt., was less than that of the corticosteroids tested concurrently. The pituitary-adrenal axis did not appear to be influenced by prolonged administration of the drug.

278. Vanbreuseghem (R.). **Contribution expérimentale à l'étude des applications cliniques de la griséofulvine.** [An experimental contribution to the study of clinical applications of griseofulvin.]—*Bull. Acad. Méd. Belg.*, Ser. VI, **25**, 9, pp. 617–642, 1960. [27 ref.]

After reviewing work on the treatment of dermatophytic onyxis with griseofulvin [**4**, No. 52 f], the author gives a detailed account of an experiment at Inst. Méd. trop. Prince Léopold, Antwerp, in which young white mice were given daily *per os* for 15, 21, and 28 days 1·25 mg. of griseofulvin as an emulsion in milk. At the end of each of these periods the mice were killed and the claws removed, sterilized, and exposed to infection (by a method which is described) by *Microsporum gypseum* or *Trichophyton mentagrophytes* on glass slides. Some of the griseofulvin-treated mice also received a daily dose of 0·25 mg. of azepine, which has been reported as exerting a vasodilatory effect over long periods. Three 5-day-old mice, the offspring of 1 given griseofulvin for 25 days, were also exposed to infection by *M. gypseum*. Untreated controls were also exposed to infection. In all, 802 claws were studied from 47 mice.

The tabulated results show that all the claws from control animals and those treated for 15 days with griseofulvin were infected by *M. gypseum* and *T. mentagrophytes*. The claws from the offspring of the treated mouse showed 96·1% infection by *M. gypseum*. The claws of mice treated for 21 and 28 days had, respectively, 47·6% and 62% infection by *M. gypseum*; those treated with griseofulvin for 21 days had 70% infection by *T. mentagrophytes*; and those given both griseofulvin and azepine for 15 and 21 days had, respectively, 90% and 74·6% infection. Animals treated for 4 weeks did not display increased resistance.

279. Frey (J. R.) & Geleick (H.). **Zur Wirkung von lokal (epicutan) appliziertem Griseofulvin auf die experimentelle Meerschweinchen-Trichophytie.** [On the effect of locally (epicutaneously) applied griseofulvin on experimental Guinea-pig trichophytosis.]—*Dermatologica, Basel*, **121**, 5, pp. 205–278, 1 graph, 1960. [Fr., Engl. summ. 36 ref.]

At Abteilung für experimentelle Medizin, F. Hoffmann-La Roche & Co. AG, Basel, local administration of griseofulvin as a carbowax ointment proved as effective as oral administration in reducing the intensity and curtailing the duration of infection by *Trichophyton mentagrophytes* in guinea-pigs [**3**, No. 1423]. At the max. conc. of 5%, cultures from all the animals were negative after a few days compared with upwards of a month for oral treatment; while 1·5 and 0·5% also produced comparable results in some cases.

280. Ito (K.). **Immunobiologic aspect of griseofulvin therapy.**—*Bull. pharm. Res. Inst., Osaka*, 27, pp. 24–40, 11 fig., 4 graphs, 1960.

In the studies of experimental infection of rabbits [with *Trichophyton mentagrophytes*: cf. **3**, No. 1458] at Gifu med. Coll. and the Pharm. Res. Inst., Osaka-Takatsuki, Japan, griseofulvin therapy inhibited the experimental trichophytid reaction.

281. Tomomatsu (S.). **A study on griseofulvin. I. Comparison of electron microscopical observation of effect of griseofulvin with that of fungicidal drug.**—*Bull. pharm. Res. Inst., Osaka*, 26, pp. 11–20, 17 fig., 1960. [18 ref.]

This well-illustrated report from Gifu med. Coll., Japan, is on optical and electron microscope observations of *Trichophyton mentagrophytes* revealing a characteristic curling of the mycelium, swelling of the germ tubes accompanied by plasmolysis, vacuoles, and absence of mitochondria, and a reduced formation of microconidia under the influence of griseofulvin, and a tendency to 'cytoplasmic disappearance', including vacuolation and the 'small body', but no swelling, under the influence of the mercurial merzonin.

282. Nguyen-Vinh-Nien. **Résultats du traitement de 74 cas de mycoses tropicales par le laurylsulfonate de cuprammonium.** [Results of the treatment of 74 cases of tropical mycoses with cuprammonium lauryl sulphonate.]—*Bull. Soc. Path. exot.*, **53**, 3, pp. 476–493, 1960.

A detailed report from the Faculté de Médecine et Pharmacie, Saigon, Viet-Nam, on the use of laurylcuivre (Lab. Sarget, Bordeaux), as an emulsion or powder (1 or 3%) in the treatment of infections caused principally by *Candida albicans*, *Ctenomyces interdigitalis* [*Trichophyton interdigitale*], *C.* [*T.*] *mentagrophytes*, *Epidermophyton floccosum*, *Malassezia furfur*, *Piedraia javanica*, *T. concentricum*, *T.* [*Microsporum*] *ferrugineum*, *T. rubrum*, *T. sabouraudii*, *T. tonsurans*, and *T. violaceum*.

The results were rated as 'excellent' in 58% of the total number of cases, 'good' in 27%, 'doubtful' in 8%, and 'unsuccessful' in 7%.

283. Rdzanek (Irena). **Wyniki leczenia grzybic nowymi lekami grzybobojczymi.** [Results of treating fungal infections with new medical fungicides.]—*Przegl. Derm. Wener.*, **47**, 1, pp. 11–20, 1960. [Abs. in *Med. Referat. Zh.*, **4**, 10, p. 116, 1960.]

In the treatment of 136 cases of infection by dermatophytes and *Candida albicans* in Warsaw, best results were obtained with undecylenic acid ointment followed by salicylanilide, antimycin, bradex-vioform, and dehydro-acetic acid.

284. Miedler (L. J.), Bocobo (F. C.), & Wheeler (A. H.). **Anaflora—a new anionic detergent. Clinical and laboratory study of its effect on epidermal fungi and bacteria.**—*J. invest. Derm.*, **35**, 5, pp. 269–272, 1960.

At Inst. Industrial Health, Univ. Mich., anaflora (Dow Chemical Co., Midland, Mich.) included in detergent or soap bars was relatively ineffective as a sole therapeutic agent for tinea pedis. A min. of 5–10 mg./ml. was required to inhibit the growth of pathogenic fungi *in vitro*.

285. Nathanson (R. B.). **The fungistatic action of oleic, linoleic, and linolenic acids on Trichophyton rubrum in vitro.**—*J. invest. Derm.*, **35**, 5, pp. 261–263, 1 graph, 1960.

At 4, Brookfield rd., West Harford, Conn., filter paper disks soaked in acetone sols. of the above-mentioned acids were placed on agar plates seeded with *T. rubrum*, and zones of inhibition were measured after 8 days at 24° C. Oleic acid was only slightly fungistatic at 1:10; linoleic acid was slightly to moderately fungistatic

and linolenic acid was moderately to substantially fungistatic at 1:1,000–1:10. Undiluted acetone under the same conditions was not inhibitory.

286. Frencel (Irena) & Kościński (R.). [Fungistatic action *in vitro* of some alkaloids from *Chelidonium majus*.]—*Diss. Pharm.*, **12**, pp. 7–10, 1960. [Pol., Engl. summ. *Chem. Abstr.*, **54**, 21, cols. 22856–22857a, 1960.]

In tests at Med. Acad., Poznań, to determine the efficiency of protopine, sanguinarine, and chelidonine against *Epidermophyton* Kaufmann-Wolf [*Trichophyton interdigitale*] and *E. floccosum* on Sabouraud's liquid medium, a distinct inhibitory action was observed at alkaloid concs. above 716·7 μg./ml. *E. floccosum* was the more sensitive of the 2 spp. and the activity of sanguinarine slightly greater than that of protopine and chelidonine.

287. Nauer (A.). **Experimentelle und klinische Untersuchungen mit einem neuen bakteriostatisch und antimykotisch wirksamen Chemotherapeuticum.** [Experimental and clinical studies with a new bacteriostatically and antimycotically effective chemotherapeutic.]—*Dermatologica, Basel*, **121**, 5, pp. 285–297, 1960. [Engl., Fr. summ.]

In *in vitro* experiments at Dermatologische Universitätsklinik, Basel, PP 1 (available commercially as 'anaflex') and other derivatives of urea inhibited the growth of *Epidermophyton* [*Trichophyton*] *interdigitale* and *T. gypseum* [*T. mentagrophytes*]. In these tests the development of *Candida albicans* and *Aspergillus niger* was not impeded, but in clinical trials PP 1 was beneficial in the treatment of various dermatoses caused by [unspecified] yeasts when used as a powder at the high conc. of 10%.

288. Balabanoff [Balabanov] (V. A.). **Antibiose und Dermatophyten.** [Antibiosis and dermatophytes.]—*Zbl. Bakt.*, 1. Abt. (*Orig.*), **179**, pp. 241–254, 9 fig., 1 graph, 1960. [Engl., Fr., Span., Russ. summ. 34 ref.]

An account from Fac. Med., Sofia, Bulgaria, of the antibiotic effect of saprophytic micro-organisms on dermatophytes, e.g. of *Penicillium notatum* on *Microsporum ferrugineum* and *Bacterium faecalis alkaligenes* on *M. gypseum*. The 'pearl' method for preparing fungus+bacterium agar cultures, used in addition to current techniques, consisted in growing the fungus in a Petri dish on the upper (dextrose/honey-agar) layer for 3–7 days, sticking several sterilized glass pearls on its surface outside the culture so that, after turning out the agar into the dish cover, they keep the culture detached from the glass and able to develop, and inoculating the surface (now upper) of the other (1% dextrose-agar) layer along the edges of the culture with the bacterium. Antagonism was noted in 12% of 700 cultures.

289. Capretti (C.). **Microsporum canis—producción de 'organos perforadores' de pelos en cultivo según la técnica de Ajello y Georg.** [*M. canis*—production of 'perforating organs' in hair when cultivated by Ajello and Georg's technique.]—*Rev. derm. venez.*, **1**, 4, pp. 334–338, 2 fig., 1959.

At Facultad de Medicina, Univ. Los Andes, Mérida, Venezuela, all of 30 isolates of *M. canis* from human and animal sources in Venezuela, Italy, and U.S.A. were observed to produce perforations of hair *in vitro* by Ajello and Georg's technique [**2**, No. 2270].

290. Das-Gupta (S. N.) & Shome (S. K.). **Studies in medical mycology. VI. A note on the enzymes of two common dermatophytes.**—*Curr. Sci.*, **29**, 11, pp. 432–433, 1960.

The results of investigations at Bot. Dept, Lucknow Univ., into the presence or absence of 17 enzymes or enzyme-groups in *Trichophyton rubrum* and *T. mentagrophytes* are tabulated. The metabolic processes of the 2 organisms are similar to

each other and to other parasitic micro-organisms, but *T. mentagrophytes* showed laccase activity whereas *T. rubrum* did not.

291. Roth (H. L.) & Winkelmann (R. K.). **Histochemical technic for macroscopic study of fungi.**—*J. invest. Derm.*, **35**, 6, pp. 353–359, 1960.

The results of an investigation at Dermat. Sect., Mayo Clinic, Rochester, Minn., of the enzymatic activity of 12 dermatophytes and 6 saprophytic fungi, by microscopic histochemistry, are discussed.

292. Zussman (R. A.), Lyon (I.), & Vicher (E. E.). **Melanoid pigment production in a strain of Trichophyton rubrum.**—*J. Bact.*, **80**, 5, pp. 708–713, 2 graphs, 1960. [18 ref.]

At Univ. Illinois Coll. Med., Chicago, Zussman (Thesis, Univ. Ill. Graduate Sch., 1959) having demonstrated that pigment production by *T. rubrum* is dependent upon tyrosine or phenylalanine and atmospheric O and that ascorbic acid added to the medium at concs. that do not seriously inhibit growth prevent pigment formation, a study was made of the mechanism by which the pigment is elaborated. Purified water-insoluble pigments and a water-soluble purple pigment were characterized. Studies with labelled C^{14} indicated that all or most of the C atoms of the tyrosine molecule are incorporated into the pigment molecule while it was concluded from nutritional and metabolic evidence that *T. rubrum* forms melanoid pigments.

293. McCabe (M. G.) & Mier (P. D.). **Pigments of Trichophyta.**—*J. gen. Microbiol.*, **23**, pp. 1–7, 6 graphs, 1960.

In further studies [cf. P. D. Mier, *Nature, Lond.*, **179**, pp. 1084–1085, 1957] at St. John's Hosp. for Diseases of the Skin, London, pigments possessing the properties of anthraquinones were isolated from *T. mentagrophytes*, *T. violaceum*, and *T. rubrum*. Each pigment was characterized by its typical absorption spectrum, colour change with various reagents, and Rf value on paper chromatography.

294. Pinetti (P.) & Lostia (A.). **La coltura su terreni liquidi quale mezzo di differenziazione di Trichophyton violaceum e di altri Trichophyton del gruppo faviforme.** [Culture on liquid media as a means of differentiating *T. violaceum* and other *T.* spp. of the faviform group.]—*Rass. med. sarda*, **62** (N.S. **11**), 5 bis, pp. 713–716, 1960. [Engl. summ.]

Studies at Univ. Cagliari, Sardinia, of 105 strs. of dermatophytes in liquid media showed that in peptoglucosate broth *T. violaceum* grows in a different manner (submerged culture) from that of numerous other spp., which form velvety, downy, or glabrous cultures.

295. Vanbreuseghem (R.), Dekeyser (P.), & Lauwers (R.). **Culture sur terre non stérile de divers dermatophytes.** [The culture in non-sterile soil of various dermatophytes.]—*Ann. Soc. belge Méd. trop.*, **40**, 2, pp. 415–422, 1960. [Flem., Engl., Germ., Span. summ. 7 ref.]

At Inst. Méd. trop., Antwerp, it was demonstrated that hairs from guinea-pigs and horses parasitized by *Trichophyton mentagrophytes* or *Microsporum canis* can give rise on sterile and non-sterile soil to the development of the fungus infecting them, cultures so obtained being pathogenic to guinea-pigs. *T. mentagrophytes* grew on unsterilized soil+equal vol. of rabbit faeces, but not on unsterilized soil+equal vol. of fowl or human faeces. Hairs from a cow infected by *T. verrucosum* gave rise to colonies on sterilized and unsterilized soil but no subcultures were obtained and inoculations to guinea-pigs gave negative results. It is concluded that some dermatophytes develop in soil from their parasitic state and live on in it saprophytically.

296. Griffin (D. M.). **Fungal colonization of sterile hair in contact with soil.**—*Trans. Brit. mycol. Soc.*, **43**, 4, pp. 583–596, 1960. [42 ref.]

The fungal colonization of sterile hair in contact with soil from 3 sources in New South Wales was studied at Sch. Agric., Univ. Sydney, Australia. A characteristic succession was demonstrated. The initial colonizers were common soil fungi of high general competitive saprophytic ability (*Fusarium* spp., some *Penicillium* spp. and various Mucorales), followed by a 2nd group (*Chaetomium cochlioides*, *Gliocladium roseum*, *Humicola* spp., and other *Penicillium* spp.). The final ones were slow-growing keratinolytic fungi, including *Microsporum gypseum* and *Keratinomyces ajelloi* which were isolated from all soils, and *Trichophyton terrestre* from 1 only.

297. Meinhof (W.), Thianprasit (M.), & Rieth (H.). **Nachweis, Isolierung und Identifizierung keratinverwertender hautpathogener Bodenpilze.** [Detection, isolation, and identification of keratin-utilizing skin-pathogenic soil fungi.]—*Arch. klin. exp. Derm.*, **212**, 1, pp. 30–48, 17 fig., 1960. [107 ref.]

At the Universitäts-Hautklinik, Hamburg-Eppendorf, using hairs up to 10 cm. in length as 'bait', the authors isolated fungi from 98 of 125 samples of soil (including garden, field, forest, moorland, pit sand, street dust, and bank slime) from Hamburg and Schleswig-Holstein. The spp. identified comprised 88 isolates of *Keratinomyces ajelloi*, 2 each of another *K.* sp. and *Microsporum gypseum*, and 18 of *Trichophyton terrestre* [cf. below]. Both the imperfect and perfect states developed in each case (for the 1st time in that of *T. terrestre*).

A mutant of *K. ajelloi* differs from the normal form in the almost exclusive production of microconidia and in its apparent identity with *T. equinum* in morphology, physiology, and nicotinic acid requirement. *K. ajelloi* is stated to be the most refractory to griseofulvin therapy of all known dermatophytes.

298. Schönfeld (J.), Rieth (H.), & Thianprasit (M.). **Experimenteller Beitrag zur Dermatophytenflora des Ostsee-Badestrandes.** [Experimental contribution to the dermatophyte flora of the Baltic bathing beaches.]—*Arch. klin. exp. Derm.*, **212**, 1, pp. 78–87, 5 fig., 1960. [59 ref.]

Using the hair 'bait' method [see above], the authors isolated *Trichophyton terrestre* from 22 of 28 beach sand samples and from all 10 of adjacent garden soil. The beach sand also yielded *Cephalosporium* sp. (3 samples), while *Keratinomyces ajelloi* occurred in 8 of 10 from garden soil. No fungi developed in 12 samples of sand from the sea.

In view of the profusion of perithecia found in cultures of *T. terrestre* the adoption of the name *Ctenomyces terrestris* for the perfect state of the fungus is proposed, retaining *T. terrestre* for the imperfect.

299. Ueckert (H.). **Morphologie und Taxonomie der Dermatophyten. II. Die Einordnung der Dermatophyten in das künstliche System der Fungi imperfecti.** [Morphology and taxonomy of the dermatophytes. II. Classification of the dermatophytes in the artificial system of the fungi imperfecti.]—*Bull. pharm. Res. Inst., Osaka*, 26, pp. 1–10, 6 fig., 1960. [29 ref.]

This information has been noticed [**3**, No. 1261; and cf. **4**, No. 86].

300. Benedek (T.). **Critical survey of the present stand of the production of perfect stage of organs of fructification in dermatophytes.**—*Mycopathologia*, **13**, 4, pp. 287–301, 1960. [Germ. summ. 18 ref.]

A review and discussion of earlier work on this problem, from Matruchot & Dassonville, 1899 to Ciferri & Redaelli, 1947–9 [**1**, No. 1217].

301. Griffin (D. M.). **The re-discovery of Gymnoascus gypseum, the perfect state of Microsporum gypseum, and a note on Trichophyton terrestre.**—*Trans. Brit. mycol. Soc.*, **43**, 4, pp. 637–642, 2 plates, 1960.

At Sch. Agric., Univ. Sydney, Australia, *M. gypseum* isolated from virgin bushland soil produced cleistothecia when grown on hair on the surface of soil [**4**, Nos. 90, 302]. The fungus is considered to be conspecific with *Gymnoascus gypseus* Nannizzi, but shows some differences, and an emended diagnosis is given. The inclusion of this fungus in *Gymnoascus* is considered doubtful. Structures similar to cleistothecia, but containing only micro-conidia, were observed in *Trichophyton terrestre* grown on hair and soil [**4**, No. 303].

302. Stockdale (Phyllis M.). **Nannizzia incurvata gen. nov., sp. nov., a perfect state of Microsporum gypseum (Bodin) Guiart et Grigorakis.**—*Sabouraudia*, **1**, 1, pp. 41–48, 3 fig., 1 pl., 1961. [12 ref. Germ. summ.]

At the Commonwealth Mycol. Inst., Kew, 2 strs. of *M. gypseum* isolated from human skin lesions produced cleistothecia [cf. **3**, No. 1601; **4**, No. 90, see above] when grown on keratinaceous material on the surface of soil. The cleistothecia are most similar to those of *Arthroderma* but show differences in the structure of the peridial hyphae and the fungus is considered to be a new genus and species for which the name *Nannizzia incurvata* is proposed.

303. Dawson (Christine O.) & Gentles (J. C.). **The perfect states of Keratinomyces ajelloi Vanbreuseghem, Trichophyton terrestre Durie & Frey and Microsporum nanum Fuentes.**—*Sabouraudia*, **1**, 1, pp. 49–57, 4 pl., 1961. [Fr. summ.]

At the Dept Bact., Univ. Glasgow, *K. ajelloi*, *T. terrestre*, *M. gypseum*, and *Arthroderma curreyi* were isolated from soils from W. Scotland by the hair bait technique. Some strs. of *K. ajelloi* formed cleistothecia on the horse hair bait [**3**, No. 970], and others formed cleistothecia in combination with single ascospore cultures, the fungus being heterothallic. A str. of *T. terrestre* first formed cleistothecia, 1 yr. after isolation, on Czapek-Dox agar with 1% peptone, at $< 25°$ C. Other natural isolates produced cleistothecia in soil culture when mated with single ascospore str., and usually it was inconsequential whether + or − strs. were used. The sexual states of *K. ajelloi* and *T terrestre* are considered to be *Arthroderma* spp., and are named *A. uncinatum* and *A. quadrifidum*, respectively.

Cleistothecia were formed by *M. nanum* when 2 strs. (from man in Cuba [**2**, No. 2152] and from pigs in Kenya) were grown together on hair on unsterilized soil. The peridial hyphae of the cleistothecia closely resembled those in *Nannizzia* [**4**, No. 302] and the name *N. obtusa* is proposed.

304. Szathmáry (S.). **Die Cleistothecium-Bildung von Ctenomyces trichophyticus-Trichophyton gypseum var. asteroides-auf sterilisiertem Heu.** [Cleistothecium formation by *C. trichophyticus*—*T. mentagrophytes* var. *asteroides*—on sterilized hay.]—*Mykosen*, **3**, 3, pp. 77–83, 10 fig., 1960.

At the Med. mycol. Lab., Karcag, Hungary, a str. of *T. mentagrophytes* var. *asteroides* produced cleistothecia on hair baits on garden soil, and also on sterilized hay.

305. Barker (S. A.) & Trotter (M. D.). **Isolation of purified trichophytin.**—*Nature, Lond.*, **188**, 4746, pp. 232–233, 1960.

In an attempt by Univ. Chem. Dept and Med. Res. Council Unit, Birmingham, to isolate the antigenic material in a purified form and to obtain preliminary data concerning its constitution *T. mentagrophytes* was grown in a medium containing glucose (50 g.), 1% $(NH_4)_2SO_4$ (100 ml.), 1% $NaNO_3$ (100 ml.), 5% acid hydrolysed casein (100 ml.), trace metal ions (1 ml.; $FeSO_4$ (200 mg.); $MnSO_4$ (100 mg.); $ZnSO_4$ (100 mg. in 100 ml. water)), and sol. A (540 ml.) and B (105 ml.) of Krebs-Ringer

phosphate. After 4–6 weeks the mycelium was rinsed in distilled water and dried with acetone, and then extracted severally in an 'Ato-mix' by M NaCl, 5% trichloracetic acid, and ethylene glycol, filtered through 'Filtercel', dialysed, and freeze-dried. The yield of 'crude' trichophytin was approx. 8% after the 1st and 10% after the 2nd extraction. This product was purified by being dissolved in water (500 mg./30 ml.), in addition to equal volumes of 'Cetavlon' (B.D.H. 10%) and borate buffer (pH 7, 1%), whereafter N NaOH was added for precipitation. The precipitate was washed successively with acetic acid-ethanol mixture, ethanol, and ether, and dried. Any borate and 'Cetavlon' ions were removed by passing an aqueous sol. down a column of 'Zeokarb 225 (H+)', dialysing the eluate, and recovering the active material by freeze-drying.

Non-specific reactions, indicated by control guinea-pigs, were almost completely eliminated, where the biological response of both 'immediate' and 'delayed' reactions was practically undiminished.

306. Cruickshank (C. N. D.), Trotter (M. D.), & Wood (S. R.). **Studies on trichophytin sensitivity.**—*J. invest. Derm.*, **35**, 4, pp. 219–223, 1 fig., 1 graph, 1960.

At the med. Sch., Univ. Birmingham, guinea-pigs reacted similarly to trichophytin, whether sensitized by inoculation of *Trichophyton mentagrophytes* or by injections of acetone-dried powdered mycelium in Freund's adjuvant: immediate reactions, delayed reactions and the Koch phenomenon were demonstrated, and anaphylaxis, passive cutaneous anaphylaxis, and passive transfer of delayed type sensitivity by peritoneal cells were accomplished. The potency of trichophytin extracts could be assayed using sensitized guinea-pigs as the mean diameter of the delayed reaction was proportional to the logarithm of the conc. of trichophytin injected.

A purified trichophytin was prepared from ethylene glycol extracts of *T. mentagrophytes* [cf. above] and was shown to consist of a polysaccharide with attached peptide.

In preliminary skin-tests, of 15 people who gave positive immediate reactions to commercial trichophytin 10 reacted similarly to the purified preparation; of 11 giving positive delayed reaction to the commercial product 8 reacted thus to the purified material.

307. Inaba (K.). **Experimental study on hematogenous reinfection with Trichophyton mentagrophytes var. asteroides. I. Necrotic eruption artificially produced at the ears of test Rabbit immunized by Trichophyton mentagrophytes var. asteroides following intravenous injection with its suspension. II. Experimental papulonecrotic trichophytid.**—*Bull. pharm. Res. Inst., Osaka*, 27, pp. 8–23, 17 fig., 1960; 28, pp. 9–18, 10 fig., 1960.

In further experiments [cf. **3**, No. 1289] necrotic and nodular eruptions were produced on rabbits' ears at Gifu med. Coll. and the Pharm. Res. Inst., Osaka-Takatsuki, Japan. They were interpreted as allergic reactions due to *Trichophyton* elements. There was no essential difference between the nodular type provoked by haematogenous reinfection and the same type in the ears due to dorsal skin reinfection. Experimental trichophytid, necrotizing type and nodular type were comparable to the corresponding reactions of human trichophytid.

In the 2nd paper generalized papulonecrotic lesions are reported to have developed after the lesions on ears. Histopathologically, these eruptions were of allergic nature and represented an intermediate type between the necrotizing (localized) and the nodular (localized).

308. Scott (M. J.). **Piedra-like artifacts.**—*Arch. Derm., Chicago*, **82**, 6, pp. 1003–1005, 11 fig., 1960.

Artifacts, macroscopically similar to piedra, and caused by solidification on the hair of chemicals used in hair sprays, are described.

309. Brygoo (E. R.) & Segretain (G.). **Étude clinique épidémiologique et mycologique de la chromoblastomycose à Madagascar.** [Clinical, epidemiological, and mycological study of chromoblastomycosis in Madagascar.]—*Bull. Soc. Path. exot.*, **53**, 3, pp. 443–475, 11 fig., 2 maps, 1960. [118 ref.]

Cultures were obtained in 62 of 129 cases investigated during a 4-yr. period beginning in 1959 and the fungi were identified in 59, 30 being attributed to *Phialophora pedrosoi* and 29 to *Cladosporium carrionii*, the former predominating in the E., with an annual rainfall of 2,200–3,200 mm., and the latter in the S.E. (500–600 mm). Infection was heaviest among men aged over 40 (62 cases) and only 18 of the patients were women.

310. Nityananda (K.). **Chromoblastomycosis (1st reported case in a Ceylonese).** — *Ceylon med. J.*, N.S., **5**, 3, p. 129, 1960.

At General Hosp., Colombo, *Hormodendrum* [*Phialophora*] *pedrosoi* was isolated on Sabouraud's dextrose agar, with and without the addition of 40 units streptomycin, 20 penicillin, and 0·5 mg. actidione/ml., from the pus of abscesses on the dorsal aspect of the thorax and the lumbar and left gluteal regions of a 59-yr.-old agricultural worker.

311. Symmers (W. St. C.). **Chromoblastomycosis simulating rhinosporidiosis in a patient from Ceylon.**—*J. clin. Path.*, **13**, 4, pp. 287–290, 2 col. fig., 1960.

A report from the Charing Cross Hosp. med. Sch., London, of a case of chromoblastomycosis confined to the mucous membrane of one side of the nasal septum in a young male Sinhalese student, who developed the lesion in Ceylon. The organism was not cultivated, but its characteristics in histological preparations were typical of those of *Phialophora pedrosoi* and related fungi. The diagnosis is considered justified in spite of the great rarity of mucosal involvement in this disease, and the complete absence of skin lesions.

Cure was effected by excision of the lesion and cauterization.

312. Horn (I. H.), Wilansky (D. L.), Harland (W. A.), & Blank (F.). **Neurogenic hypernatremia with mycotic brain granulomas due to Cladosporium trichoides.**—*Canad. med. Ass. J.*, **83**, pp. 1314–1317, 4 fig., 1960.

From Jewish Gen. Hosp. and McGill Univ., Montreal, is reported a case of neurogenic hypernatremia in a 68-yr.-old woman. Autopsy showed senile atrophy and widespread granulomatous lesions in the brain. Within the lesions round and oval fungal elements arranged in chains attached to septate hyphae, with thick, brownish walls, and indistinguishable from *C. trichoides*, were seen [cf. **3**, Nos. 765, 1001].

313. Brumpt (V.). **À propos de quatre mycétomes observés à Bobo-Dioulasso (Haute-Volta).** [Concerning four mycetomata observed at Bobo-Dioulasso (Haute-Volta).]—*Bull. Soc. Path. exot.*, **53**, 4, pp. 610–612, 2 fig., 1960.

Infection in the cases reported (dating from 1954 and the only ones falling within the period 1949–60) was attributed to *Madurella mycetomi* in 1, *Streptomyces pelletieri* in 2, and *S. madurae* in 1.

314. Neilson (D. B.). **Pulmonary aspergillosis associated with radiation pneumonitis.**—*Scot. med. J.*, **4**, 12, pp. 557–562, 10 fig., 1959. [*B.H.*, **35**, p. 450.]

At Victoria Infirmary, Glasgow, a large, solitary, bronchogenic cyst in the right lung of a 57-yr.-old female patient was revealed incidentally during mastectomy for carcinoma. Infection of the cyst developed 18 months after the lung had been exposed to radiation therapy, necessitating surgical excision. Histological examination disclosed the presence within and around the cavity of a fungus which also

occurred in the sputum and was identified in culture as *Aspergillus fumigatus*. It is postulated that the pneumonitis consequent on radiation so devitalized the lung, and especially the epithelium lining the cyst, as to permit the growth of inhaled spores of the organism.

315. Belcher (J. R.) & Plummer (N. S.). **Surgery in broncho-pulmonary aspergillosis.**—*Brit. J. Dis. Chest*, **54**, 4, pp. 335–341, 3 fig., 1960. [21 ref.]

From a study of 21 patients operated upon at the London Chest Hosp. for pulmonary lesions from which *Aspergillus fumigatus* was isolated, and of 22 similar cases from the literature, attention is drawn to the hazards of surgery in aspergillosis of the lungs.

Resection of simple aspergillomas carries little risk and should be recommended if diagnosis is in doubt because of the possibility of carcinoma, but if diagnosis is reasonably certain surgical removal is justified only if there is a great increase in size of the lesion or troublesome haemoptysis. In patients with complex aspergillomas or with suppurative pulmonary lesions but no aspergilloma, the incidence of post-operative complications was very high (75%) and resection should be avoided if possible. The indications for surgery in such cases are discussed. Surgery is neither necessary nor desirable for the localized lesions of allergic aspergillosis.

316. Orie (N. G. M.), De Vries (G. A.), & Kikstra (A.). **Growth of Aspergillus in the human lung. Aspergilloma and aspergillosis.**—*Amer. Rev. resp. Dis.*, **82**, 5, pp. 649–662, 8 fig., 1960. [Fr., Span. summ. 56 ref.]

From Med. Clinic, State Univ., Groningen, and Centraalbureau voor Schimmelcultures, Baarn, Netherlands, a series of cases of *Aspergillus fumigatus* growing in the human lung is presented. In 44 cases a manifest pre-existent disease process was present. The growth of the organism showed in many respects the character of saprophytism with no inflammatory reaction in most cases and no sputum production unless concomitant bacterial infection or asthmatic symptoms existed. Absence of pathogenic power is also suggested by the fact that the process often remains stationary for years, cysts exist in the same or in the contralateral lung without signs of fungus growth, the air-bladders of birds are sometimes filled with *A.* spores without becoming diseased, and that so far no delayed type of allergic reaction has been described. A slight pathogenicity of the organism and the rare existence of primary local or septic processes are not excluded, however; in the case of haemoptysis, especially, the role of the fungus seems undeniable.

It is believed that the significance of the fungus is over-estimated and it is recommended that operation in cases of *A.* growth in the lung is indicated only when the complaints are severe and originate from the fungus growth, and when the other affections which are usually present do not contra-indicate operation.

317. Fish (R. G.), Takaro (T.), & Lovell (M.). **Coexistent Addison's disease and North American blastomycosis.**—*Amer. J. Med.*, **28**, 1, pp. 152–155, 1960.

A report from the Veterans Administration Hosp., Oteen, N. Carol., on the clinical course of a patient with proved systemic blastomycosis (*Blastomyces dermatitidis*), who developed Addison's disease. Since autopsy findings indicated appreciable (5–10%) involvement of the adrenals in blastomycosis, this possibility should be borne in mind whether there are symptoms or not, and studies undertaken to determine whether the function of the adrenal cortex is adequate.

318. Ball (O. G.), Lummus (F. L.), Sigrest (Marion L.), Busey (J. F.), & Allison (F.). **An immunologic survey for systemic fungus infections in general hospital patients of central Mississippi.**—*Amer. J. Hyg.*, **72**, 2, pp. 231–243, 1960.

Of 302 patients in 2 hospitals at Jackson, 17 reacted positively to tests with crude

blastomycin antigen performed by the agar-diffusion precipitin technique, suggesting the existence of subclinical infection by *Blastomyces dermatitidis*. This conclusion, however, must await further confirmation since the method has not yet been evaluated. The more conventional procedures of skin-testing (which disclosed 150 positive histoplasmin reactors), complement-fixation, and chest X-rays yielded no evidence of asymptomatic blastomycosis.

319. Howard (D. H.) & Herndon (R. L.). **Tissue cultures of mouse peritoneal exudates inoculated with Blastomyces dermatitidis.**—*J. Bact.*, **80**, 4, pp. 522–527, 6 fig., 1960. [11 ref.]

At Dept Med., Univ. Calif., peritoneal exudates of mice in tissue culture were observed after inoculation with *B. dermatitidis*. Inoculation with 2×10^5 yeast cells produced an overwhelming destruction of cell cultures; the time required for expression of the destructive effects was directly related to the number of yeast cells inoculated. *B. dermatitidis* is not so well suited to such studies as *Histoplasma capsulatum* [**3**, No. 1353] as it tends to remain in aggregates during proliferation, making observations of intracellular parasitism difficult. Inoculation of macrophage cultures with the mycelial phase resulted in conversion to the yeast phase; the sequence of changes was similar to that of *H. capsulatum*.

320. Gamet (A.) & Brunel (M.). **Observation peu commune d'un cas de moules bronchiques à Candida albicans.** [Uncommon observation of a case of bronchial casts due to *C. albicans*.]—*Bull. Soc. Path. exot.*, **53**, 4, pp. 644–650, 7 fig., 1960.

A full report on the course of infection in an 18-yr.-old female patient at the Hôpital de Yaoundé, Cameroons, supplemented by laboratory data.

321. Pearl (M. A.) & Sidransky (H.). **Candida endocarditis. Two new cases with a review of twelve cases previously reported.**—*Amer. Heart J.*, **60**, 3, pp. 345–353, 4 fig., 1 table, 1960. [32 ref.]

From the Dept Path., Tulane Univ. Sch. Med., and Charity Hosp. of Louisiana, New Orleans, comes this report of 2 fatal cases of *Candida* endocarditis [cf. **2**, Nos. 822–3, 1574, 2136], one preceded by enterococcus endocarditis and the other by rheumatic fever. The infection in both cases was thought to have been favoured by the antibiotics and steroids used.

322. De Sousa (H. M.) & Van Uden (N.). **The mode of infection and reinfection in yeast vulvovaginitis.**—*Amer. J. Obstet. Gynec.*, **80**, 6, pp. 1096–1100, 1960.

At Bot. Inst., Univ. Lisbon, it was found that a high proportion of women with vaginal yeast infection also harboured the organism in the intestinal tract, and this is considered an important source of yeast vaginitis. The incidence of *Candida albicans* and *Torulopsis glabrata* (the most commonly isolated spp.) in the faeces was not significantly altered by local vaginal treatment; 2 cases of recurrent yeast vaginitis were cured by eliminating yeasts from the intestinal tract. There was also a high degree of correlation between the presence of yeasts in the vagina and urine, but it is considered that the yeasts enter the urethra from the infected vagina, and not *vice versa*, as local vaginal treatment resulted in spontaneous disappearance of the organism from the urine.

323. Taubert (H. D.) & Smith (A. G.). **The clinical use of Taschdjian's medium in the diagnosis of vulvovaginal candidiasis.**—*J. Lab. clin. Med.*, **55**, 5, pp. 820–828, 2 fig., 1960. [57 ref.]

At Univ. Md Sch. Med., Baltimore, cultures of yeast-like fungi were obtained from 87 (43·5%) of 200 gynaecological and obstetric patients, among whom the vaginal flora of 57 (28·5%) yielded *Candida albicans* on Taschdjian's cream of rice

infusion tween 80 agar [**2**, No. 2367]. Of 59 patients with clinical symptoms of moniliasis, 22 (37·3%) showed no evidence of yeast-like fungal infection. *C. albicans* was harboured by 36 of 67 pregnant patients (53·7%) and by 21 of 133 non-pregnant (15·8).

324. Shkol'nikov (I. É.). К эпидемиологии и профилактике поверхностных бластомикозов как профессиональных заболеваний на пищевых предприятиях. [On the epidemiology and prophylaxis of superficial blastomycoses as occupational diseases in the food industry.]—Вест. Дерм. Венер. [*Vestn. Derm. Ven.*], *1960*, 6, pp. 22–24, 1960. [Abs. in *Med. Referat. Zh.*, I, **4**, 11, p. 124, 1960.]

Infection of nails and nail folds by *Candida* sp. was noted in 0·11–12% of 1,046 workers in different establishments of the food industry in Leningrad. A strict sanitary and hygienic régime is recommended.

325. Barbesier (J.). **Les champignons levuriformes du genre Candida dans les mammites de la vache laitière.** [The levuriform fungi of the genus *C.* in mastitis infections of the milch Cow.]—*Arch. Inst. Pasteur Algér.*, **38**, 2, pp. 231–235, 1960. [13 ref.]

From 1955–59 the author isolated from 7 cases of mastitis 5 strs. of *C. tropicalis* and 1 each of *C. tenuis* and *C. guilliermondii*. Three strs. of *C. tropicalis* were pathogenic to rabbits, causing the typical symptoms of pulmonary congestion and renal hypertrophy with abscesses, while *C. tenuis* induced mild splenomegaly and ascites in mice.

326. Keymer (I. F.) & Austwick (P. K. C.). **Moniliasis in Partridges (Perdix perdix).**—*Sabouraudia*, **1**, 1, pp. 22–29, 6 fig., 1961. [12 ref. Fr. summ.]

An outbreak of moniliasis associated with heavy losses in artificially reared partridges in Bucks. is reported from Central Vet. Lab., Weybridge. The clinical signs were mainly incoordination, but lesions were observed on the tongue, crop, and digits. *Candida albicans* was isolated from all the lesions, which histologically showed no marked reaction. It was also isolated in large numbers from the environment, including sites not contaminated by the partridges. Treatment with oxytetracycline hydrochloride and phenylmercuric dinaphthylmethane disulphonate was ineffective but the outbreak cleared up when nystatin was added to the drinking water.

The authors find it difficult to believe that the presence of *C. albicans* associated with the lesions found could be entirely responsible for death, and suggest that either the yeast may be capable of producing a toxaemia or that its presence in the alimentary tract may cause a nutritional deficiency.

327. Hasenclever (H. F.) & Mitchell (W. O.). **Pathogenicity of C. albicans and C. tropicalis.**—*Sabouraudia*, **1**, 1, pp. 16–21, 10 fig., 1961. [Fr. summ.]

A report from Nat. Inst. Allergy and Infectious Diseases, Bethesda, Md, of the mortality rates observed after intravenous injection of 52 strs. of *Candida albicans* and 14 strs. of *C. tropicalis* in mice, and 4 strs. of *C. tropicalis* in rabbits. Most *C. tropicalis* strs. were considerably virulent for mice, though less so than *C. albicans*, but showed little or no pathogenicity for rabbits. *In vivo* multiplication rates were determined by sacrificing, at set time intervals, mice infected with a standard number of yeast cells. For both spp. most yeast cell and mycelial propagation occurred in the kidneys [cf. **3**, No. 1793, **4**, Nos. 2d, 131]. With *C. tropicalis* there was also an initial yeast cell growth in the brains of infected mice, 2–4 days after injection, followed by a decrease of viable yeast cells.

328. Gresham (G. A.) & Whittle (C. H.). **Studies of the invasive, mycelial form of Candida albicans.**—*Sabouraudia*, **1**, 1, pp. 30–33, 1 pl., 1961. [Fr. summ.]

At the Depts. Path. and Med., Univ. Cambridge, iso-nicotinic acid hydrazide (I.N.A.H.) was found to inhibit mycelial production of *C. albicans in vitro* and in the rabbit. Rabbits given a loading dose of 10 mg. I.N.A.H. previous to a *C. albicans* injection, followed by intraperitoneal doses of 10 mg. I.N.A.H. daily for 7 days, survived, but showed small lesions in the kidneys when killed 18 days later. It was also shown that ribonucleic acid is present throughout the length of *C. albicans* hyphae, as in those of mycelial fungi such as *Aspergillus fumigatus*, supporting the view that *C. albicans* forms a true mycelium which may help it to invade tissues [**3**, No. 1793].

329. Campbell (J. B.), Seguin (Lucille), Kutscher (A. H.), & Zegarelli (E. V.). **Activity of amphotericin B against Candida albicans.**—*Oral Surg.*, **13**, 10, pp. 1273–1275, 1960.

In sensitivity studies at Frances Delafield Hosp., Columbia Univ., N.Y., using amphotericin B at 3 μg./6-mm. disk, the growth of 93 strs. of *C. albicans*, including stock culture specimens and recent clinical isolates, was suppressed to a greater or lesser extent, the inhibition zones measuring 1–3 mm. and upwards.

330. Louria (D. B.) & Dineen (P.). **Amphotericin B in treatment of disseminated moniliasis.**—*J. Amer. med. Ass.*, **174**, 3, pp. 273–279, 3 fig., 1960. [18 ref.]

Two patients at Bellevue Hosp., N.Y., with disseminated moniliasis following abdominal surgery, responded to intravenous injections of amphotericin B [**3**, Nos. 1012, 1013, 1015, 1652]. The *Candida albicans* isolate from the 1st patient was inhibited by 0·06 μg./ml. of amphotericin B *in vitro* and clinical cure was achieved after therapy with 1,560 mg. of amphotericin B given over 1 month. In the 2nd patient the *C. albicans* isolate was inhibited by 0·03 μg./ml. of amphotericin B *in vitro* and clinical cure was achieved after 33 days' treatment with a total of 1,080 mg. of amphotericin B. A 3rd patient with rheumatic heart disease developed persistent monilial endocarditis and died despite 16 months of intermittent therapy with amphotericin B. The str. of *C. albicans* from this patient was inhibited *in vitro* by 0·03 μg./ml. amphotericin B. Blood concs. of amphotericin B fungicidal for *Candida* cannot be achieved at currently employed dosage levels.

331. Tsinzerling (A. V.). О влиянии хлортетрациклина на течение экспериментального кандидамикоза легких белых крыс. Сообщение II. Опыты с предварительным введением хлортетрациклина. [Concerning the effect of chlorotetracycline on the course of experimental pulmonary moniliasis of white rats. Report II. Experiments with preliminary administration of chlorotetracycline.]—Бюлл. эксп. Биол. Мед. [*Byull. éksp. Biol. Med.*], **50**, 9, pp. 120–123, 1960. [Engl. summ.]

This further paper [cf. Tsinzerling (A. V.). *Byull. éksp. Biol. Med.*, **47**, 6, p. 33, 1959] gives the results of a study of 82 white rats infected intranasally by *Candida albicans*. Pulmonary moniliasis develops on infection with 800 million cells of the pathogen. The mortality rate was higher in animals given tetracycline for 2 weeks prior to infection and subsequently, than in those given chlorotetracycline simultaneously with the pathogen. The administration of 1 million cells of *C. albicans* failed to produce moniliasis. Multiplication of *C. albicans* with the formation of inflammatory foci may, however, occur with prolonged preliminary administration of chlorotetracycline, which gives a greater development of experimental moniliasis than simultaneous administration with the pathogen.

332. Cox (W. A.) & D'Arcy (P. F.). **The activity of polymethylene-bis-4-amino-quinaldium salts against Pityrosporum ovale and Candida albicans.**—*J. Pharm., Lond.*, **13**, 1, pp. 34–38, 1961.

At Allen & Hanburys Ltd., Ware, Herts., a homologous series of the above-mentioned salts was shown to exert marked fungistatic activity in tests on *P. ovale* and *C. albicans*, with peaks occurring at chain lengths of $(CH_2)_{12}$ and $(CH_2)_6$, respectively. The decamethylene member (dequalinium) exhibited potent and rapid fungicidal activity against both spp., which is assumed, on the basis of quantitative data from experiments involving brief periods of drug-yeast contact, to be a function of the conc. of the quaternary compound and the time of exposure.

333. Henis (Y.) & Grossowicz (N.). **Studies on the mode of action of antifungal heptaene antibiotics.**—*J. gen. Microbiol.*, **23**, 2, pp. 345–355, 8 fig., 1960. [27 ref.]

From studies, which are detailed, at Hadassah med. Sch., Jerusalem, of the effects of heptamycin on the respiration of *Candida albicans* it is suggested that the fungistatic effect is mainly due to the prevention of phosphate uptake.

334. De Lima (O. G.), D'Albuquerque (I.), D'Albuquerque (Marisa M.), & Coêlho (J. S. B.). **Presence of antibiotics, active against Candida species in the stem and roots of Miconia species.**—*Rev. Inst. antibiót. Univ. Recife*, **2**, pp. 3–17, 1959. [*Chem. Abstr.*, **54**, 22, col. 25092b, 1960.]

The antibiotic activity of extracts from *M.* spp., studied by chromatographic methods, was determined. Tannin-like properties were observed in 1 of the fractions active against *C. albicans*. The existence of a more stable antibiotic substance, which did not give tannin reactions, was also demonstrated.

335. Brody (J. I.) & Finch (S. C.), with the technical assistance of Bettina McIlroy. **Candida-reacting antibody in the serum of patients with lymphomas and related disorders.**—*Blood*, **15**, 6, pp. 830–839, 2 fig., 1 graph, 1960. [Interlingua summ. 30 ref.]

At Yale Univ. Sch. Med., New Haven, Conn., the quantity and characteristics of antibody reacting with *C. albicans* were determined in the sera of 85 subjects, of whom 38 were normal and the others suffering from lymphoma, leucaemia, disseminated cancer, and various forms of anaemia.

Little antibody was present in infants, but it increased progressively during adolescence and occurred in high titre in the serum of normal adults. There was no significant decrease in the sera of patients with advanced neoplastic disease, most of whom had been given extensive specific therapy. The increased incidence of disseminated monilial infections in patients suffering from lymphoma and leucaemia is attributed to alteration in the defence tissue mechanisms rather than to humoral antibody.

The antibody was characterized by lack of cross absorption with rice starch polysaccharide, complete absorption with *C. albicans*, and increased serum reactivity following active antigenic stimulation in rabbits.

336. Hasenclever (H. F.) & Mitchell (W. O.). **Antigenic relationships of Torulopsis glabrata and seven species of the genus Candida.**—*J. Bact.*, **79**, 5, pp. 677–681, 1960. [9 ref.]

At National Inst. Allergy Infectious Diseases, Bethesda, Md, *T. glabrata* was shown to have antigens in common with *C. tropicalis*, *C. parapsilosis*, *C. stellatoidea*, *C. guilliermondii*, *C. albicans*, *C. krusei*, and *C. pseudotropicalis*. The data also reveal relationships between the *C.* spp. [cf. **3**, No. 275].

337. Dutt-Choudhuri (R.) & Dutt (R.). **A simple medium for the demonstration of chlamydospores of Candida albicans.**—*Nature, Lond.*, **189**, 4762, p. 418, 1961.

At the Central Lab., Chitaranjan Seva Sadan Coll. Obstetrics, Gynaecol. and Child Health, Calcutta, all of 10 strs. of *C. albicans*, but no other *C.* spp. tested, produced chlamydospores when a 24-hr. culture on Sabouraud's glucose agar was emulsified with 1 ml. sterile normal saline, 1 ml. of this emulsion was added to a tube containing 4 drops of human serum, and the tube incubated at 37° C. for 24 hr.

338. Firestone (Bernice Y.) & Koser (S. A.). **Growth promoting effect of some biotin analogues for Candida albicans.**—*J. Bact.*, **79**, 5, pp. 674–676, 1960. [18 ref.]

At Chicago Univ. experiments with 4 isolates of *C. albicans* showed biocytin and oxybiotin able to replace biotin at activities of 75–100% and 20% that of biotin, respectively. Dethiobiotin equalled biotin up to 0·1 mμg./ml. but higher concs. were inhibitive. Norbiotin and biotinol exhibited little activity. Homobiotin was virtually inactive as was tween 80 (polyoxyethylene sorbitan monooleate) which, however, produced some stimulation of growth in the presence of aspartic acid, which could partially replace biotin [cf. **2**, No. 2374].

339. Rao (G. R.), Ramakrishnan (T.), & Sirsi (M.). **Enzymes in Candida albicans. I. Pathways of glucose dissimilation.**—*J. Bact.*, **80**, 5, pp. 654–658, 6 graphs, 1960. [18 ref.]

Studies at Indian Inst. Sci., Bangalore, with whole cells and cell-free extracts showed *C. albicans* to possess the enzymes of both Embden-Meyerhof and hexose monophosphate shunt pathways.

340. Skinner (C. E.) & Fletcher (D. W.). **A review of the genus Candida.**—*Bact. Rev.*, **24**, 4, pp. 397–416, 1960. [227 ref.]

This useful review, from the Dept Bact. and Public Health, Wash. State Univ., Pullman, and Dept Biol., State Coll., San Francisco, Calif., covers the literature which has appeared since an earlier review (the late C. E. Skinner, *Bact. Rev.*, **11**, pp. 227–274, 1947). Medical aspects are excluded because of the volume of literature; non-medical aspects are discussed under the headings Nomenclature and Taxonomy, Ecology of *Candida*, Methods of study of *Candida* (isolation, identification, preservation of cultures), and Physiology (metabolic products and nutrition, cytology, antibiosis).

341. Artagaveytia-Allende (R. C.) & Coelho (R. P.). **Estudio de Candida humicola (Daszewska) Diddens et Lodder y el reconocimiento de Candida curvata (Diddens et Lodder) Lodder et Van Rij como su sinónimo.** [*C. curvata*, a synonym of *C. humicola*.]—*Atas Inst. Micol., Recife*, **1**, pp. 377–380, 1960.

From a comparative study of a str. of *C. curvata*, isolated from a urethral secretion in Recife, Brazil, with strs. of *C. curvata* and *C. humicola* from culture collections it is concluded that *C. curvata* is conspecific with *C. humicola*.

342. Mackenzie (D. W. R.). **Yeasts from human sources.**—*Sabouraudia*, **1**, 1, pp. 8–15, 1961. [46 ref. Fr. summ.]

Specimens of urine, sputum, throat swabs, stools, high vaginal swabs, wound swabs or discharges, and other sources, obtained at random from a cross-section of hospital patients, were examined at Exp. Mycoses Unit, Dept Bot., Univ. Edinburgh, for the presence of yeasts. The 1,004 specimens examined yielded 247 isolates representing 23 spp.: *Candida albicans* was most frequently isolated (56%), followed by *Torulopsis glabrata* (12·4%), which was the most common sp. isolated

from urine, *Rhodotorula mucilaginosa* (6·1%), and *C. tropicalis* (4·8%). Qualitative and quantitative aspects of the yeast flora of each source are considered.

343. Saëz (H.). **Debaryomyces coudertii, nouvelle espèce de levure isolée chez un manchot royal (Aptenodytes patagonica Miller).** [*D. coudertii*, a new species of yeast isolated from a King Penguin (*A. patagonica*).]—*Bull. mens. Soc. linn. Lyon*, **29**, 10, pp. 288–289, 1960.

In Feb. 1960 the author isolated from the droppings of an apparently healthy penguin in the Parc Zoologique, Paris, where it had been living since Nov. 1955, an undescribed yeast with round or almost round blastospores 3·5–5 × 4–5·8 μ and round ascospores with a rugose membrane. The organism assimilates glucose, galactose, and (sometimes, but weakly) maltose. It is named *D. coudertii* Saëz.

344. Joffe (B.). **An epidemic of coccidioidomycosis probably related to soil.**—*New Engl. J. Med.*, **262**, 14, pp. 720–722, 1960. [*T.D.B.*, **57**, p. 1216.]

The suspected cause of an outbreak involving 33 persons at an air base in Calif. was inadequate dust control during soil excavations, and a programme of grassing, oiling, and wetting the ground is suggested. In some cases the symptoms were exclusively cutaneous. Attempts to isolate *Coccidioides immitis* were unsuccessful.

345. Reams (G. B.). **Coexistent pulmonary coccidioidomycosis and tuberculosis.**—*Lancet*, **2**, 7163, pp. 1281–1282, 4 fig., 1960.

A case report from 7510th U.S.A.F. Hosp., Wimpole Park, England, gives the clinical history of a healthy white man of 22, who had grown up in San Joaquin Valley, Calif., and who was found on arrival in England to have an apical lesion on X-ray which segmental resection revealed to be the effect of coexistent coccidioidomycosis [*Coccidioides immitis*] and active tuberculosis (*Mycobacterium tuberculosis*). Neither organism was cultured.

346. Skipworth (G. B.), Bergin (J. J.), & Williams (R. M.). **Coccidioidal granulomas of skin and conjunctiva treated with intravenous amphotericin B.**—*Arch. Derm., Chicago*, **82**, 4, pp. 605–608, 6 fig., 1960.

A case report from Letterman Army Hosp., San Francisco, of *Coccidioides immitis* infection of the skin and conjunctiva of a 32-yr.-old Negro woman. The infection developed 2 months after a trip through the San Joaquin Valley, Calif., in 1953. In 1959 intravenous administration of 5·1 g. amphotericin B over 8 months has resulted in remarkable clinical improvement, and treatment is being continued. Excessive or too frequent doses caused increasing azotemia, which was prevented by giving the antibiotic on alternate days.

347. Huntington (R. W.). **Pathologic and clinical observations on coccidioidomycosis.**—*Wisconsin med. J.*, **58**, 8, pp. 471–478, 1959. [*Biol. Abstr.*, **35**, No. 71143.]

A review.

348. **Coccidioidomycosis (valley fever) in Arizona.**—*Ariz. public Hlth News*, **52**, 2, 28 pp., 20 fig., 1959.

A semi-popular but comprehensive survey with sections by C. E. Smith, K. T. Maddy, L. K. Swasey, H. G. Crecelius, O. J. Farness, D. W. Melick, R. E. Reed, and M. Jeffrey.

349. Maddy (K. T.). **The geographic distribution of Coccidioides immitis and possible ecologic implications.**—*Ariz. Med.*, **15**, 3, pp. 178–188, 12 maps, 1958. [71 ref.]

This detailed, well-documented, and comprehensive review shows the distribution

of coccidioidomycosis in the United States to correspond with the Lower Sonoran Life Zone [**3**, No. 1195; **4**, No. 353].

350. Maddy (K. T.). **Coccidioidomycosis in animals.**—*Vet. Med.*, **54**, pp. 233–242, 1 map, 20 fig., 1959. [61 ref.]

A well-documented review of *Coccidioides immitis* infection in farm, domestic, and wild animals.

351. Maddy (K. T.). **Coccidioidomycosis.**—*Advanc. vet. Sci.*, **6**, pp. 251–286, 1960. [7 pp. ref.]

A concise but comprehensive review of coccidioidomycosis (*Coccidioides immitis*) with special reference to animals.

352. Maddy (K. T.). **A study of a site in Arizona where a Dog apparently acquired a Coccidioides immitis infection.**—*Amer. J. vet. Res.*, **20**, 77, pp. 642–646, 2 fig., 1960.

It is reported from Ariz. State Dept Health, Phoenix, that of soil samples from rodent burrows in the Ariz. desert 12 of 73 from the surface, 14 of 68 at 6 in. and 4 of 57 at 12 in. yielded *C. immitis*. Most of the positive samples were collected during Sept.–Dec. None of 63 other samples away from rodent burrows was positive.

353. Maddy (K. T.), Crecelius (H. G.), & Cornell (R. G.). **Distribution of Coccidioides immitis determined by testing Cattle.**—*Publ. Hlth Rep., Wash.*, **75**, 10, pp. 955–962, 5 maps, 1960. [26 ref.]

The results of coccidioidin tests by the Ariz. Dept Health of 11,643 cattle (1–6-yr.-old) during 1954–59, which are tabulated and mapped, revealed rather definite boundaries to the endemic areas of the state. These areas were found to coincide with the Lower Sonoran Life Zone [**4**, No. 349].

The annual conversion rates for cattle, calculated by the Manos method [**2**, No. 541], were found to be almost identical with the human infection rate per year in the same areas.

354. Pappagianis (D.), Miller (R. L.), Smith (C. E.), & Kobayashi (G. S.). **Response of Monkeys to respiratory challenge following subcutaneous inoculation with Coccidioides immitis.**—*Amer. Rev. resp. Dis.*, **82**, 2, pp. 244–250, 18 fig., 1960.

Of 7 monkeys inoculated at Naval biol. Lab., Univ. Calif., Berkeley, with *C. immitis* [cf. **3**, No. 1194] spores 6 developed only localized fluctuant abscesses (2–3 cm.) in 2 weeks. After being later subjected to inhalation of set dosages (746 or 29,000) of spores, 3 remained healthy and 3 became very ill during the next 46 days, although X-ray and histological findings were similar in all: widely scattered lesions 0·1–0·7 mm. diam. in the lungs, pneumonitis with oedema fluid, occasional haemorrhage, rare immature *C. immitis* spherules, and necrosis virtually absent. Non-inoculated monkeys (4) subject to inhalation became severely ill by the end of the same period and displayed abundant spherules in the large mixed granulomatous lesions 1 cm. or greater in size and often confluent, and extensive necrosis. Though the build-up of resistance in inoculated monkeys was apparent, the scarcity of tests precludes exact evaluation.

355. Maddy (K. T.), Reed (R. E.), Trautman (R. J.), & Snell (V. N.). **Experimental bovine coccidioidomycosis.**—*Amer. J. vet. Res.*, **21**, 84, pp. 748–752, 1 fig., 1960. [Interlingua summ.]

At Coll. Agric., Tucson, Ariz., and at other localities in Ariz. 93 cattle were

inoculated individually by the intra-tracheal route with ½–2 million viable particles of *Coccidioides immitis*. No signs of illness developed in 90–130 days. Precipitin antibody formation was erratic but most of the inoculated animals developed skin sensitivity to coccidioidin.

356. Hauser (T. E.). **Cryptococcosis : a case report.**—*Ann. intern. Med.*, **53**, 4, pp. 816–822, 3 fig., 1960. [Interlingua summ. 8 ref.]

A note from N. Mesa med. Group, Carlsbad, New Mexico, on a severe, acute cryptotoccal (*Cryptococcus neoformans*) meningo-encephalitis in a 56-yr.-old man, who died 27 days after the onset of the illness despite amphotericin B therapy. Autopsy also revealed cryptococcal granulomas in the upper lobes of both lungs. Cultures from the patient's house, the chicken house, and other suspect sites gave negative results.

357. McGibbon (C.) & Readett (M.). **Torulosis presenting in a skin department.** —*Brit. J. Derm.*, **72**, 12, pp. 430–433, 2 fig., 1960.

A case report from Newsham General Hosp., Liverpool, of a man of 45 with multiple facial ulcers caused by *Cryptococcus neoformans*. Griseofulvin, nystatin, and potassium iodide had no effect, amphotericin B caused some improvement for a few days. At autopsy he was found to have an unsuspected lymphadenoma.

358. Unat (E. K.), Pars (B.), & Kosyak (J. P.). **A case of cryptococcosis of the colon.**—*Brit. med. J.*, **2**, 5211, pp. 1501–1502, 4 fig., 1960. [11 ref.]

From Inst. Parasitology, Univ. Istanbul, a case report is made on a 16-yr.-old male student. Diarrhoea of 8 yr. standing was found to be due to a hard tumour-like mass in the descending colon. A 22 cm. length of colon was resected and identification of a cryptococcus was made by H. & E. staining. Gelatinous masses of free cryptococci were absent and giant cells rare.

359. Carnecchia (B. M.) & Kurtzke (J. F.). **Fatal toxic reaction to amphotericin B in cryptococcal meningo-encephalitis.**—*Ann. intern. Med.*, **53**, 5, pp. 1027–1036, 6 fig., 4 graphs, 1960. [Interlingua summ. 10 ref.]

At the Veterans Administration Hosp., Coatesville, Penn., a 32-yr.-old Negro male with cryptococcal (*Cryptococcus neoformans*) meningo-encephalitis (diagnosed histologically, cultures were negative) received 4·82 g. amphotericin B in 4 separate courses during 1 yr. The efficacy of the antibiotic in clearing the tissues of cryptococci was demonstrated, spinal fluid reverted to normal, but no clinical improvement was seen because of the adhesive arachnoiditis. Toxic effects of amphotericin B were manifest in fever, nausea, and vomiting, and were controlled by antihistamines. The patient deteriorated gradually. Autopsy revealed acute toxic degeneration of the liver and toxic nephrosis.

360. Bergman (F.). **Reproduction and pathogenicity of Cryptococcus neoformans.** —*Sabouraudia*, **1**, 1, pp. 34–40, 2 fig., 1961. [Germ. summ.]

At Univ. Dept Path., General Hosp., Malmö, Sweden, no difference was found in the virulence to mice of 5 strs. of *C. neoformans*, and the survival times were inversely proportional to the dose. No increased virulence, as demonstrated by intracerebral injection of mice, resulted from 42–57 intraperitoneal mouse passages alternating with 6–10 days' culture on artificial media.

The growth rate on Sabouraud dextrose agar was examined in terms of budding cells: reproduction began to decrease within 48 hr. of inoculation. Cultures which had undergone alternating passage through mice and culture on solid media usually showed a higher proportion of budding cells. No difference was found in cultures grown on 5-day-old or 15-day-old media.

361. Louria (D. B.). **Specific and non-specific immunity in experimental cryptococcosis in Mice.**—*J. exp. Med.*, **111**, 5, pp. 643–665, 9 graphs, 1960. [33 ref.]

At Bellevue Hosp., N.Y., the course of lethal infection by *Cryptococcus neoformans* in mice was modified by immunization with the same or different strs. of the fungus [**3**, No. 692]. Protection was associated with a definite reduction in tissue fungus multiplication over the initial 7 days of infection; it was specific, conferring no immunity from challenge by heterologous organisms. A similar modification of lethal infection by *C. neoformans* was induced by intraperitoneal inoculation with 100–200 μg. of *Salmonella* endotoxin 7 days before challenge by the fungus.

When small numbers of virulent *C. neoformans* cells were injected intravenously into normal mice, tissue populations rose significantly in all the organs studied during the 1st 7 days and then fell progressively in most cases for the next 6 months.

362. Saëz (H.). **Utilization of carbon compounds by four species of Geotrichum: Geotrichum candidum, Geotrichum pulmoneum, Geotrichum redaellii, and Geotrichum asteroides.**—*Bull. mens. Soc. linn. Lyon*, **29**, pp. 96–98, 1960. [*Chem. Abstr.*, **54**, 18, col. 18680h, 1960.]

At Mus. National d'Histoire Naturelle, Paris, the author examined strs. of the above-mentioned spp. isolated from animal intestines, viz. 3 of *G. candidum*, 2 each of *G. pulmoneum* and *G. asteroides*, and 1 of *G. redaellii*. They were grown for 1 month at 20° C. on agar containing mineral salts, traces of vitamins, and a C source. All the strs. utilized D-glucose, D-galactose, and (except for 1 of *G. asteroides*), mannitol. Another divergence between the *G. asteroides* lay in the different rates at which glucose and galactose were assimilated. All the C sources supporting growth produced distinct development of colonies after 48 hr. The results for *G. candidum* were confirmed with some 100 strs. of animal origin.

363. Caretta (G.). **Validità del Geotrichum amycelicum Red. et Cif.** [The validity of *G. amycelicum*.]—*Atti Ist. bot. Univ. Pavia*, Ser. 5, **18**, pp. 141–147, 1 pl., 1960. [Engl. summ. 14 ref.]

From a study at Univ. Pavia of an isolate from the Centraalbureau, Baarn, of the original culture of *G. amycelicum* from human skin the author reconfirms the validity of the sp. and gives an expanded description. The lateral branches of the mycelium consist of 5–9 arthrospores measuring 6·4–3·2 × 3·2 μ; sometimes adhesive appressoria are present, mostly roundish-cerebriform in shape and measuring about 24 μ diam.

364. Butler (E. E.). **Pathogenicity and taxonomy of Geotrichum candidum.**—*Phytopathology*, **50**, 9, pp. 665–672, 3 fig., 1960.

At Univ. Calif., Davis, isolates of *G. candidum* [cf. **3**, No. 572] from tomato, muskmelon, fruit, milk, sewage, and other sources all attacked both ripe and mature green tomato fruit.

365. Negroni (P.). **Micosis profundis (cutáneas y viscerales). Vol. II. Histoplasmosis. Histoplasmosis en la Argentina.** [Deep mycoses (cutaneous and visceral). Vol. 2. Histoplasmosis. Histoplasmosis in Argentina.]—143 pp., 34 fig., La Plata, Comisión de Investigación Científica, Provincia de Buenos Aires (Publicación Especial No. 1), 1960.

After chapters reviewing the general characteristics, symptomatology, pathology, animal hosts, allergy and immunity, mycology, and diagnosis of histoplasmosis (*Histoplasma capsulatum*), 51 cases from Argentina are tabulated and discussed. The vol. concludes with a 12-page bibliography and a general index.

[Vol. **1** of this work (*Los Micetomas*, 387 pp., 109 fig., Buenos Aires, El Ateneo, 1954) dealt with actinomycosis and the mycetomas.]

366. **Contribution à l'étude de l'histoplasmose au Katanga.** [Contribution to the study of histoplasmosis in Katanga.]—*Ann. Soc. belge Méd. trop.*, **40**, 3, pp. 293–307, 2 plans, 1960. [Flem., Engl., Germ., Span. summ. 35 ref.]

The 3 papers in this symposium are: P. Bovy, [Clinical study. Pulmonary histoplasmosis in miliary form]; R. P. F. Anciaux de Favaux, [Ecological considerations on histoplasmosis]; and S. R. Pattyn & J. P. Delville, [Mycological study. Demonstration of *Histoplasma* in a cave].

In Aug. 1959, 4 cases of acute pulmonary infection by *Histoplasma capsulatum* were diagnosed among the European members of the Society of Speleology, Jadotville [cf. **4**, No. 197]. The patients recovered under medical supervision and symptomatic treatment.

The fungus was isolated from a mouse trapped in a local cave, but attempts to recover it from the soil were unsuccessful. The str. was only slightly pathogenic to mice in laboratory experiments.

367. Kunaratnam (N.), Tan Kheng Koo, & Adams (M.). **A case of histoplasmosis in Singapore.**—*Singapore med. J.*, **1**, 3, pp. 99–105, 9 fig., 1960. [29 ref.]

Histoplasma capsulatum was isolated from the pus of the cervical gland, throat swabs, bone marrow, and sputum of a 59-yr.-old male Chinese patient at the Singapore General Hosp. A very favourable response was elicited by intravenous infusion of amphotericin B combined with a course of oral sulphatriad. This is the 1st record of histoplasmosis in Singapore.

368. Walker (W. J.) & James (E. C.). **Pulmonary histoplasmosis.**—*Canad. med. Ass. J.*, **81**, 6, pp. 486–488, 6 fig., 1959.

An unusual case of chronic progressive pulmonary infection by *Histoplasma capsulatum* in a 26-yr.-old woman is reported from St. Joseph's Hosp., Hamilton, Ont. The patient had lived from the age of 3–14 yr. in S.W. Ont., where histoplasmosis is apparently endemic. At the time of writing the patient was in good health, 6 yr. after the surgical removal of numerous granulomata and cysts from both lungs.

369. Straub (M.) & Schwarz (J.). **General pathology of human and canine histoplasmosis.**—*Amer. Rev. resp. Dis.*, **82**, 4, pp. 528–541, 12 fig., 1960. [Sp., Fr. summ. 23 ref.]

At Jewish Hosp. and Coll. Med., Cincinnati, autopsy of 55 adult patients who had had diseases other than active histoplasmosis revealed healed primary histoplasmosis in 47. Healed or healing lesions were also found in 20 of 100 dogs from the Cincinnati area. The histoplasmic nature of the lesions was diagnosed microscopically from the presence of *Histoplasma capsulatum*. All except 1 man and 9 dogs showed involvement of lymph nodes draining the primary focus. Splenic calcifications were found in over 60% positive patients (never in dogs), hepatic in a few.

370. Baum (G. L.), Green (R. A.), & Schwarz (J.). **Enlarging pulmonary histoplasmoma.**—*Amer. Rev. respir. Dis.*, **82**, 5, pp. 721–726, 4 fig., 1960. [Fr., Span. summ. 18 ref.]

From Veterans Administration Hosp., Cincinnati, Ohio, and other centres in Ohio and Mich., are reported 4 cases of slowly enlarging histoplasmomas in the lungs of 28–43-yr.-old white males. All of the lesions were inactive morphologically and it is suggested that the roentgenographic finding was due to the gradual change in density of the periphery of the granulomatous tissue. Culturally both the central amorphous material and the capsule were sterile, although yeast cells of *Histoplasma capsulatum* were demonstrated histologically. Histoplasmin skin-tests were positive; complement fixation was negative in the 2 cases tested.

It is stated that slowly reacting pulmonary lesions of marked density in younger persons are not necessarily malignant or active infections and do not constitute invariable indications for surgery.

371. Schwarz (E.). **Radiological contributions to the diagnosis of histoplasmosis.**—*J. Amer. med. Ass.*, **170**, 18, pp. 2171–2174, 6 fig., 1959.

A note from Dept Radiology, Johnston Memorial Clinic, Abingdon, Va, on the results of a radiological study of 74 pediatric patients negative to tuberculin but positive to histoplasmin.

In 12 children the only symptoms were gastrointestinal, viz. nausea, vomiting, and abdominal pain. There were hilar calcifications in 32 and perihilar lung infiltrates in 10 of 67 cases, with various patterns. Diagnosis is difficult because it may no longer be possible to isolate *Histoplasma capsulatum* from specimens taken 5 months after infection, and because 5 years or more may elapse before chest roentgenograms become positive for calcification. In patients positive to histoplasmin but negative to tuberculin the presence of an isolated lung infiltrate of miliary involvement with hilar adenopathy should suggest a diagnosis of histoplasmosis.

372. Saliba (A.) & Beatty (O. A.). **A report of 12 selected cases of pulmonary histoplasmosis.**—*Thorax*, **15**, 3, pp. 204–211, 6 fig., 1960. [12 ref.]

At District Two State Tuberculosis Hosp., Louisville, Kent., of 10 men (5 farmers) and 2 women, all white, with varying radiological appearances not distinguishable from pulmonary tuberculosis, 11 were found to have *Histoplasma capsulatum* in their sputum or tissue sections. The remaining case had a high positive complement fixation, but negative sputum cultures. Radiologically these cases presented cavitation, destroyed lungs, nodular or miliary disease, enlarged hilar glands, or infiltration. Treatment with amphotericin B, though helpful, showed no radiographic improvement.

373. Procknow (J. J.) & Loewen (D. F.). **Pulmonary aspergillosis with cavitation secondary to histoplasmosis.**—*Amer. Rev. resp. Dis.*, **82**, 1, pp. 101–111, 8 fig., 1960. [16 ref. *Biol. Abstr.*, **35**, No. 67654.]

Cavitary aspergillosis (*Aspergillus fumigatus*) in a 28-yr.-old white farmer was apparently secondary to bilateral apical histoplasmosis. The difficulties of differential diagnosis between the cavitary forms of these mycoses is discussed, and therapeutic measures are compared.

374. Walker (Jacqueline) & Spooner (E. T. C.). **Natural infection of the African Baboon Papio papio with the large-cell form of Histoplasma.**—*J. Path. Bact.*, **80**, 2, pp. 436–438, 7 fig., 1960.

A report from London Sch. Hyg. trop. Med. of a natural infection of an African baboon with *Histoplasma duboisii* [**2**, No. 1851.] Apart from a single area of infection in an inguinal lymph-gland, lesions were limited to the skin. Three yr. before lesions were first noticed the animal had been brought to England from Gambia, where the infection was apparently acquired. Cultures were like those from human sources.

375. Yates (J. L.), Atay (M. N.), Langeluttig (H. V.), Brasher (C. A.), & Furcolow (M. L.). **Experience with amphotericin in the therapy of histoplasmosis.**—*Dis. Chest*, **37**, 2, pp. 144–159, 2 fig., 1960. [Span., Fr., Germ. summ.]

The use of amphotericin B in the therapy of 29 proven cases, and 1 suspected, of active *Histoplasma capsulatum* infection at Missouri State Sanatorium, is reported in detail. The drug is the best available treatment but is primarily suppressive,

and it is necessary to search for other effective antifungal agents to be used in conjunction with amphotericin.

376. Procknow (J. J.), Page (M. I.), & Loosli (C. G.). **Early pathogenesis of experimental histoplasmosis.**—*Arch. Path.*, **69**, 4, pp. 413–426, 19 fig. (16 col.), 1 graph, 1960. [20 ref.]

In experiments at Univ. Chicago Sch. Med. involving the intranasal inoculation of mice with mature, tuberculate spores of *Histoplasma capsulatum*, the inhalation of this material was shown to be responsible for diffuse areas of pulmonary exudate, the formation and release of yeast-like organisms, and their subsequent dissemination to other reticulo-endothelial tissues. Within 10 days of inoculation the process was completed and the granulomata typical of the disease established.

The mortality rate was high 2–4 weeks after infection, by which time generalized dissemination had reached its peak, and the ensuing stabilization was followed by another rise, probably attributable to increasing debilitation at 11–16 weeks.

377. Saslaw (S.), Maurice (G. E.), Cole (C. R.), & Carlisle (H. N.). **Experimental histoplasmosis in large domestic animals.**—*Proc. Soc. exp. Biol., N.Y.*, **105**, 1, pp. 76–78, 1960.

The results of experiments described in this report from Ohio St. Univ., Colombus, demonstrated the production by intratracheal inoculation with yeast-phase *Histoplasma capsulatum* of non-fatal infection in horses, cattle, sheep, and swine, determined by clinical response, development of positive reactions to skin tests, antibody formation, or histopathological changes. A horse succumbed to infection resulting from intravenous inoculation.

378. Taylor (R. L.) & Dobrovolny (C. G.). **The distribution of histoplasmin sensitivity in Guatemala.**—*Amer. J. trop. Med. Hyg.*, **9**, 5, pp. 518–522, 2 graphs, 1 map, 1960.

The range of histoplasmin sensitivity in 821 native hospital patients aged 15–60 yr. was 23–81%, the max. incidence (the highest so far recorded from C. Amer.) occurring among residents in the Quirigua district of the Caribbean lowlands, a tropical rain-forest belt, and the min. in the highest and driest areas in the region of Huchuetenango.

The uniformity of sensitivity rates in all age groups suggested that the majority of infections were acquired before the age of 15. Males outnumbered females in the approx. ratio of 5:3; sensitivity rates 62:49%.

379. Greene (C. H.), De Lalla (L. S.), & Tompkins (V. N.). **Separation of specific antigens of Histoplasma capsulatum by ion-exchange chromatography.**—*Proc. Soc. exp. Biol., N.Y.*, **105**, 1, pp. 140–141, 1 fig., 1 graph, 1960.

At N.Y. State Dept Health, Albany, 'h' and 'm' antigens, apparently specific for the detection of histoplasmosis, were separated from crude histoplasmin and purified by means of column chromatography on diaminoethyl-cellulose, using a gradient elution scheme with decreasing pH and increasing molecuity of phosphate [cf. **4**, No. 1].

380. Al-Doory (Y.). **Free lipids and phospholipid phosphorus of Histoplasma capsulatum and other pathogenic fungi.**—*J. Bact.*, **80**, 4, pp. 565–566, 1960. [9 ref.]

At Dept Plant Sci., Univ. Okla, Norman, the yeast phase of *H. capsulatum* was found to contain larger amounts of free lipids and phospholipid phosphorus than its mycelial phase or the mycelium of *Hormodendrum* [*Phialophora*] *pedrosoi* and *Microsporum canis*. Still cultures of *H. capsulatum* and *P. pedrosoi* contained more of these substances than their shake cultures.